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1 IN THE CIRCUIT COURT OF DESOTO COUNTY, MISSISSIPPI
2
3 KAY T. NUNNALLY, INDIVIDUALLY
4 AND ON BEHALF OF ALL WRONGFUL
5 DEATH BENEFICIARIES OF JOSEPH
6 LEE NUNNALLY, DECEASED PLAINTIFF
7 R. J. REYNOLDS TOBACCO DEFENDANTS
8 COMPANY AND BASIC FOODS, INC.
9
10 V. CIVIL ACTION NO. CV92-270-CD
11
12

VOLUME 8
DAILY COPY TRIAL PROCEEDINGS

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1 (Time Noted: 8:31 a.m.)
2 MR. MERKEL: Judge, before the jury comes
3 in, I think this first witness is going to have a
4 bunch of demonstrative aids and things, and where
5 can we relocate to be able to see what he's showing
6 the jury?

7 JUDGE CARLSON: Mr. David, do you want --
8 MR. DAVID: We're going to set up right
9 about here. Your Honor.

JUDGE CARLSON: However you reposition it, like to pull the chair around?

12 MR. MERKEL: Can we go over in front of
13 the jury rail and sit?

14 MR. DAVID: Stand over here.

15 JUDGE CARLSON: Pull it all the way down,
16 be fine, whatever you need to do, as long as you
17 don't get up in the jury box.

18 MR. MERKEL: Can I get enough room
19 maybe --

MR. DAVID: I don't want you looking over my shoulder.

22 MR. MERKEL: How about here.

23 MR. DAVID: No, no, no. They already
24 have copies of everything we're going to show, Your
25 Honor. We produced them 48 hours ahead of time, all
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1 the copies to the Plaintiff or whatever.

2 JUDGE CARLSON: Let's call time out.

3 (Off the record.)

4 JUDGE CARLSON: Are you ready, then?

5 MR. DAVID: Yes, sir.

6 JUDGE CARLSON: I believe we're ready for
7 the jury.

8 (Jury enters courtroom.)

9 JUDGE CARLSON: All right. Ladies and
10 gentlemen, we were ready at 8:30, but I had to wait
11 until we got word for the folks working to cut out
12 the noise. They were trying to work up until 8:30,
13 but they kept on making noise. So hopefully, it's
14 done now. But you have had the overnight recess.

15 I need to find out if you've had occasion
16 to talk with anyone about the case, anybody made an
17 effort to talk to you about the case, any outside
18 information, articles or anything you've read, or
19 any information you gained about the case, anything
20 you need to bring to my attention? Okay. I take
21 it, then, there's been no contact, discussion,
22 outside information received on the case. We'll go
23 forward at this time. All right. Mr. David, you
24 may call your first witness.

25 MR. DAVID: Yes, Your Honor. It will be
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1 Dr. David Townsend.

2 DAVID TOWNSEND, PH.D.,
3 having been first duly sworn, was examined and
4 testified as follows:

5 DIRECT EXAMINATION BY MR. DAVID:

6 Q. Can you hear me all right, Dr. Townsend?

7 A. Yes.

8 Q. Would you please tell us your full name
9 and where you live?

10 A. Yes. My name is David Townsend. I live
11 in [DELETED].

12 Q. And where are you employed, Dr. Townsend?

13 A. I am currently employed by R. J. Reynolds
14 Tobacco Company.

15 Q. What is your current title and position?

16 A. Presently I'm -- I'm vice president of
17 product development and process development.

18 Q. How long have you been employed by
19 Reynolds?

20 A. Let's see, it's been almost 23 years now.

21 Q. And what has been the principal focus of
22 your work at Reynolds for those 22 years?

23 A. Well, the main part of my job over that
24 entire period of time has been cigarette design,
25 product development and then, more recently, process

1713 development. But it's all been focused on cigarette
2 design primarily, and how to modify cigarettes.

3 Q. And how to modify cigarettes for what
4 purpose, Dr. Townsend?

5 A. Well, primarily, one of the main thrusts
6 of my work is to modify cigarettes to reduce the
7 risk of smoking.

8 Q. Would you tell the jury a little bit
9 about where you grew up, and about your wife and
10 family?

11 A. Well, I grew up in Charlotte, North
12 Carolina. I've lived a lot of different places,
13 moved around a bit. I was actually born in Kansas
14 City, moved to North Carolina when I was young. I'm
15 married and have two daughters who are -- who are
16 both grown.

17 Q. And tell the jury your educational
18 background, please.

19 A. I got an undergraduate degree, a bachelor
20 of science degree in chemistry from the University
21 of North Carolina at Chapel Hill. From there, I
22 went to Florida State University in Tallahassee and
23 got a masters degree in physical organic chemistry.
24 And then in 1974 got a Ph.D. degree in physical
25 organic chemistry.

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1 Q. What is physical organic chemistry,
2 Dr. Townsend?

3 A. It's actually a combination of two
4 different areas. There is organic chemistry, which
5 is primarily the study of what we call organic
6 molecules. Those are molecules that have primarily
7 carbon and hydrogen, also usually biological
8 molecules. Physical chemistry is the study of the
9 physical aspects of those molecules. Organic
10 chemistry is trying to understand physical aspects
11 of organic type molecules and in particular
12 specialize in how fast those -- how fast reactions
13 can occur among organic molecules.

14 And particularly how size and shape of
15 molecules, the structure of the molecules can effect
16 how fast those reactions occur. Also spend a lot of
17 time studying reactions of light in molecules and
18 the physical reactions that occur when light hits
19 molecules.

20 Q. Of you earned your doctorate from Florida
21 State University, what did you do?

22 A. I accepted a job with a company called
23 Roman Haus in Philadelphia. It's a chemical
24 company, and I was there for, I guess, right around
25 three years.

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1 Q. What did you do at Roman Haus?

2 A. I was in an area called process polymer
3 research, polymer research. And what we did was try
4 to develop processes for producing the building
5 blocks for polymers, and in particular plexiglass
6 and other types of plastic. So we tried to develop
7 processes to --

8 JUDGE CARLSON: Why don't we pause for
9 just a moment. I want to make sure that contractor
10 has word to stop.

11 (Off the record.)

12 JUDGE CARLSON: All right. Mr. David,
13 we'll go ahead and attempt it.

14 MR. DAVID: Yes, sir, Your Honor.

15 JUDGE CARLSON: Ladies and gentlemen, if
16 the noise starts up again, we'll stop. We may have
17 to send the sheriff down there.

18 MR. DAVID: Thank you, Your Honor.

19 Q. (By Mr. David) And from Roman Haus, what
20 was your next job?

21 A. When I left Roman Haus, I accepted a job
22 at R. J. Reynolds Tobacco Company.

23 Q. What was it that brought you to Reynolds,
24 Dr. Townsend?

25 A. Well, I think there were several things.

1716 1 One is I had small children at the time. And I
2 particularly wanted to be in that area or an area
3 similar to that, a smaller town, to raise my
4 children. The other thing was when I interviewed
5 with R. J. Reynolds, it was clear to me that there
6 were a lot of intellectual, and chemical and
7 scientific challenges present. So I think
8 altogether it would seem like a challenging job and
9 also a good place to live.

10 JUDGE CARLSON: Sheriff, would you go
11 down and tell him if he has any trouble stopping,
12 bring him in here. Try it again.

13 Q. (By Mr. David) And have you been
14 employed by Reynolds since that time?

15 A. Yes, I was, continuously.

16 Q. Dr. Townsend, would you briefly describe
17 your first position at Reynolds?

18 A. Well, when I first started at R. J.
19 Reynolds, let's see, I think I was a senior R&D
20 chemist, and my first job was primarily, again, in
21 the area of cigarette design. But, in particular, a
22 study of filters, cigarette papers and how cigarette
23 paper can influence the performance of cigarettes,
24 improve filtration. I also did some work in the
25 early days on particular additives to tobacco to try

1717 1 to reduce the risks of smoking, as well as selective
2 filters to remove compounds from smoke.

3 Q. Did you work on smoke chemistry during
4 that time as well?

5 A. Oh, yes, and one of the main things that
6 one looks at in doing cigarette design research is
7 smoke chemistry. Because modifications to the
8 cigarette design are intended to change the smoke
9 chemistry, particularly to simplify smoke chemistry.

10 Q. And does it take someone with a lot of
11 experience and education in chemistry or physics to
12 understand smoke chemistry?

13 A. Well, it does. The smoke chemistry is
14 extremely complex. Let me give you an example.
15 Today we know that there are more than 5,000
16 different compounds in cigarette smoke. They're
17 present at extremely low levels, but it's a very,
18 very complex mixture. The reactions that occur in
19 that mixture that we call smoker are extremely
20 complicated and extremely numerous.

21 Q. Dr. Townsend, would you briefly describe
22 your positions from 1983 through 1997.

23 A. Well, in 1983, I was promoted to a
24 position called master -- master scientist, and that
25 was a -- I continued to do cigarette design

1718 1 research. But what I did was took on more
2 responsibility for actually directing the research
3 of others. So I had a small research group that the

4 I was responsible for.

5 As time went on, I continued to take on
6 more responsibility and, in fact, got a larger
7 research group that I was responsible for, also got
8 into some -- some new areas of research for me, in
9 particular, particularly combustion research.

10 Trying to understand how combustion occurs, and some
11 of the physical and chemical processes that go on in
12 combustion. I also got into what we call aerosol
13 physics or aerosol science, trying to understand how
14 an aerosol which is really what smoke is. Smoke is
15 an aerosol, which is particles suspended in some gas
16 phase medium. Trying to understand the physics and
17 chemistry of the dynamics of that aerosol.

18 Then in 1987, I was promoted to principal
19 scientist on -- on the technical ladder. And again,
20 assumed more responsibility, but continued working
21 in the areas of cigarette design, aerosol physics
22 and combustion.

23 Then I think it was in 1996, if I recall,
24 I was promoted to senior principal scientist, which
25 is the highest technical level at Reynolds. And

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1 again, assumed more responsibility, a larger
2 research group, directing the -- the research of
3 others as well.

4 Then in 1997, I was promoted to director
5 of product development. In 1998, I believe it
6 was -- or no, I may have these dates just a little
7 bit off. But in there, very soon after, I was
8 promoted to vice president of product development.

9 Q. And in all of these positions, you were
10 involved with cigarette design?

11 A. Yes, all these positions.

12 Q. And Dr. Townsend, what is your current
13 position?

14 A. I'm currently vice president of product
15 development and process development.

16 Q. Now, in terms of cigarette design, you
17 were not alone in -- in working on cigarette design
18 in the research and development department, were
19 you?

20 A. No, not at all. We have a very large
21 research and development department. Presently
22 there are about 400 scientists and staff in the
23 research and development department. It's a very
24 large organization. And working in the product
25 development area is, I would say, approximately

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1 one-fourth of those, we have experts in chemistry
2 studying smoke composition, experts studying smoke,
3 cigarette design. We also have toxicologists,
4 biologists, physicists, just a variety of different
5 types of scientists.

6 Q. Do you have an estimate of the number of
7 PhDs?

8 A. I would say right now, it's in the
9 neighborhood of about 75 or thereabouts.

10 Q. Now, at some point in the past, were
11 there more scientists in the research and
12 development department?

13 A. Yes. Over the last 10 years, the
14 research and development department has actually

15 shrunk a bit. I think the most -- the largest
16 number of people we've had in the R&D department is
17 about -- probably approaching 700.

18 Q. Again, scientists in the various
19 disciplines that you've mentioned already?

20 A. Yes.

21 Q. And approximately a fourth or more of
22 those involved in cigarette design work?

23 A. Approximately, yes.

24 Q. Have you been accepted, Dr. Townsend, as
25 an expert in cigarette design in state and federal

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1 courts?

2 A. Yes, I have.

3 Q. Now, when you testify in court, does that
4 relieve you of your other responsibilities at
5 Reynolds?

6 A. No, it doesn't. I have a real job. And
7 my real job is cigarette design and product
8 development.

9 Q. And do you get any additional pay or any
10 sort of bonus for testifying in court?

11 A. No, I don't.

12 Q. Dr. Townsend, have you published articles
13 on various subjects dealing with chemistry while
14 you've been employed by Reynolds?

15 A. I've published a few articles. A lot of
16 the work that my scientists and I do is proprietary.
17 This is a very competitive industry, and much of the
18 cigarette design work is proprietary. Some of the
19 information, however, we do publish if it adds to
20 the scientific literature, yes.

21 Q. Have you also lectured and presented
22 papers on cigarette research and design during your
23 employment with Reynolds?

24 A. Yes, I have.

25 Q. Have you give us an example?

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1 A. Well, one example is I was invited to the
2 give a plenary lecture to Kimberly-Clarke
3 Corporation at their corporate seminar program in
4 the area of cigarette design. And the reason they
5 were interested in it is because Kimberly-Clarke at
6 that time supplied cigarette papers to the industry,
7 and they wanted to know more about cigarette design.

8 So I put together a fairly extensive and
9 probably too lengthy discussion about cigarette
10 design. And I've also presented papers at the
11 tobacco chemist research conference at CORESTA and
12 other locations as well.

13 Q. What is CORESTA, Dr. Townsend?

14 A. Well, CORESTA is an organization, CORESTA
15 is an acronym, a French acronym. But it's an
16 international organization for science related to
17 cigarette and tobacco research. And scientists from
18 around the world get together, share scientific
19 information. Another main function of CORESTA is to
20 develop standard test methods that can be used by
21 the industry, by scientists at universities and
22 elsewhere. Because it's important that we all use
23 the same or similar test methods.

24 Q. And are you a member of any other
25 professional organizations in your field?

1 A. Yes, I'm a member of the American
2 Chemical Society which is the premier organization
3 for chemists in the United States. I'm also a
4 member of the Combustion Institute.

5 Q. Getting back to CORESTA for just a
6 minute. Tell the jury about the nature of your
7 involvement with CORESTA, positions that you've
8 held?

9 A. Well, there's several. I've led task
10 forces to try to develop test methods. I have been
11 the vice president of the scientific commission,
12 which is the organization within CORESTA, it's a
13 small group that actually directs all the scientific
14 work of CORESTA. I've been the the president of the
15 technology group which is one subsection of CORESTA.
16 And the technology group has a specific function of
17 developing test methods in a particular area of
18 tobacco research.

19 Presently, I'm also on the board of
20 directors of CORESTA, and the board of directors
21 guides the entire work for CORESTA.

22 Q. Now, Dr. Townsend, have you been been
23 involved with an organization by the name of Tobacco
24 Chemist and Research Conference?

25 A. Yes. The Tobacco Chemist Research

1 Conference is actually an organization where
2 scientists, primarily from the United States, but we
3 have scientists from outside, as well, a few, come
4 together and share scientific information in
5 presentations, in poster presentations as well, as
6 well as oral presentations. And proceedings of that
7 conference are prepared and distributed and are --
8 and are archived in libraries. It's a -- it's a
9 form for sharing information.

10 Q. And have you been a presenter at any
11 conferences with TCRC?

12 A. Oh, yes.

13 Q. You've also served, I think, on
14 governmental task forces?

15 A. Yes.

16 Q. Would you tell the jury about that,
17 please?

18 A. Sure. There are several task forces that
19 have been convened by the government that I've
20 participated in. The first two are related to
21 cigarette fire safety. That is the likelihood that
22 a cigarette might start a fire if it's accidentally
23 dropped on upholstered furniture. In the '80s,
24 early to mid-'80s, there was a technical advisory
25 group created by Congress, and that technical

1 advisory group was to determine whether it's
2 practically feasible to develop a so-called fire
3 safe cigarette. So I was a member of that.

4 Then in the early '90s, 1990, I believe,
5 actually, Congress created a second group called the
6 Technical Advisory Group of 1990 Fire Safety Act,
7 and their job was to develop a test method, together
8 with several government agencies, the U.S. Consumer
9 Product Safety Commission, the National Institute of
10 Standards and Technology, which at that time was

11 called the National Bureau of Standards. So we
12 worked together as a group to try to develop a test
13 method.

14 A third organization -- body that I was
15 invited to participate in was the National Cancer
16 Institute's panel on the Federal Trade Commission
17 test method. And the National Cancer Institute was
18 asked by the Federal Trade Commission to assemble a
19 panel of experts, collect information, and evaluate
20 the smoking methods that the government had in place
21 or recommended for the industry to use to measure
22 tar, nicotine and carbon monoxide. So I presented
23 scientific information at that -- at that panel and
24 entered -- entered into a number of discussions over
25 the course of that.

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1 Then the fourth government task force
2 that I've been invited to, was -- I was invited by
3 the government of Canada to participate in a
4 scientific exchange among a number of scientists to
5 try to guide the Canadian government into a decision
6 about whether it's possible to reduce the risks of
7 smoking and directions that may be taken to reduce
8 the risks.

9 Q. Was there another scientist from Reynolds
10 involved in that as well?

11 A. Yes, Dr. DeBadeze, Dr. Don DeBadeze was
12 invited to participate as well.

13 Q. Dr. Townsend much of your testimony today
14 is going to deal with the topic of cigarette design.
15 Did your education in physical organic chemistry
16 prepare you for a career as a cigarette designer?

17 A. Oh, I believe it did. I believe it's
18 essential to have that kind of background. Because
19 to do this complicated research, you really need to
20 have experience, know how to conduct research, know
21 how to study the literature. Know how to learn from
22 early experiments that others conduct, so I would
23 say definitely, yes.

24 Q. Would you provide the jury with an
25 overview or an idea of the kinds of design research

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1 activities that you do or have done over the years,
2 just in general?

3 A. Just in general, well, there are quite a
4 number. Let me take just a few examples. We've had
5 projects to reduce the risks of smoking by
6 simplifying chemistry, by changing the combustion
7 process, itself, by trying to remove certain
8 compounds from smoke once the smoke is formed.
9 We've had projects to try to reduce the levels of
10 environmental tobacco smoke through major changes
11 the in cigarette design. And we've had some very
12 different projects that -- that, in fact, look at
13 radical cigarette design approaches.

14 Cigarettes that actually don't burn
15 tobacco in the way that the conventional cigarettes
16 do. They primarily heat tobacco, and we've looked
17 at a variety of designs along those lines.

18 Q. All right. And have you continued to be
19 trained and educated in the scientific areas
20 relating to cigarette design over the past 22 years?

21 A. Yes, I have.

22 Q. Dr. Townsend, is part of your
23 responsibilities and duties, have you been required
24 to become familiar with Reynolds' efforts in
25 cigarette design that predate your employment with

1728 the company?

1 A. Well, sure. Any scientist, I think,
2 needs to study the literature, and learn what's
3 happened before to learn the science that's occurred
4 before, the successes and failures that other
5 scientists at Reynolds and from outside Reynolds
6 have made. Because if you don't do that, you'll
7 wind up reinventing the wheel. Repeating
8 experiments that have already been conducted and
9 essentially wasting time.

10 So it's important to learn from what's
11 happened before. And the best way to do that is by
12 reviewing the literature, to review documents in the
13 R&D library, in the published scientific literature,
14 as well as from talking with scientists who have
15 conducted -- conducted that kind of research.

16 Q. So as part of that, you've reviewed the
17 external scientific literature as well?

18 A. Yes.

19 Q. Does that include the Surgeon General's
20 reports?

21 A. I've read portions of many of the Surgeon
22 General's reports, yes.

23 Q. Dr. Townsend, in your opinion, does
24 cigarette smoking cause lung cancer?

1729 1 A. Cigarette smoking is a strong risk. It's
2 a major inherent risk for lung cancer, a number of
3 other diseases, including emphysema and others,
4 cardiovascular disease. I think it -- cigarette
5 smoking certainly may cause cancer, particularly for
6 some individuals. But I think in the -- in
7 conducting cigarette design research, we at
8 Reynolds, myself included, have assumed that it does
9 cause cancer. And making that assumption, accepting
10 that premise that cigarette smoking causes cancer
11 then leads us to -- in certain directions to try to
12 reduce the risks of smoking.

13 Q. So the fact that Reynolds may have taken
14 the position in the past that cigarette smoking has
15 not been scientifically proven to cause lung cancer,
16 that hasn't stopped you or your scientists from
17 trying to design and market cigarettes with a
18 potential to reduce the the risks of smoking?

19 A. Not at all. That's what we've done.

20 Q. Now, have the suggestions and theories
21 about cigarettes in the scientific literature had an
22 influence on the course of cigarette design then at
23 Reynolds?

24 A. Oh, I think it's had a major course.
25 There are a number of theories that have been

1730 1 developed and generated. And the scientists at
2 Reynolds have looked at each of those theories.
3 There's hypotheses about why cigarette smoking is
4 such a risk. And we've looked at each of those
5 theories and examined them specifically. It's had a
6 major influence.

7 Q. Why, Dr. Townsend, has Reynolds addressed
8 the smoking and health issues in cigarette design
9 issues?

10 A. Why has Reynolds addressed the smoking
11 and health issues?

12 Q. Yes, sir.

13 A. Because cigarettes are risky. Cigarette
14 smoking is a clear strong risk for cancer,
15 emphysema, bronchitis, cardiovascular disease and a
16 number of other chronic diseases. It is the right
17 thing for us to do. And we've -- we've attacked it
18 over the years intensely, and I think we've attacked
19 it in a very responsible way.

20 Q. Working with government agencies and
21 regulators, and in your position as a vice president
22 of the company, do you also study the regulations
23 and statutes that govern your product?

24 A. Yes.

25 Q. And why do you do that?

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1 A. Well, because there are quite a few
2 regulations that the govern our product, both -- let
3 me give you a couple of examples. The Federal Trade
4 Commission smoking method, we're required to report
5 tar, nicotine and carbon monoxide levels to the
6 government. We're required to produce extensive
7 lists of all additives and ingredients to the
8 department of HHS. There are extensive regulations.
9 It's important for us to comply with those
10 regulations exactly, and we do that.

11 Q. Now, is it your understanding,
12 Dr. Townsend, that cigarettes are a legal product
13 every in the United States?

14 A. Yes, cigarettes are legal in every state.

15 Q. Okay, Dr. Townsend, I think we're going
16 to get into a bunch of these boards now. So I'm
17 going to set this easel up at least. And I'm just
18 going to put this first board that we're going to be
19 referring to up on the easel. It is marked as DWN
20 000118.

21 MR. DAVID: Your Honor, may the witness
22 step down?

23 JUDGE CARLSON: Yes, sir, you can step
24 down.

25 THE WITNESS: Thank you, Your Honor.

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1 MR. DAVID: Do you have enough room
2 there, Dr. Townsend? You want to rearrange that?

3 THE WITNESS: I want to back it up just a
4 little bit, yeah.

5 Q. (By Mr. David) Now, Dr. Townsend, have
6 you prepared the chart that's currently on the
7 easel?

8 A. Yes.

9 Q. It might be helpful for you, please, to
10 explain to the jury what, exactly, that chart
11 depicts.

12 A. Sure, what this chart is a cut away of
13 what I call the modern cigarette. First of all, I
14 think most -- most people would say that the
15 cigarette appears to be a very simple consumer
16 article. And if you look at this cut away, I'd like
17 to go through the different pieces.

18 First of all, obviously, there's tobacco
19 in the tobacco rod, what we call the tobacco rod.
20 That is a carefully prepared blend of different
21 types of tobacco. There's Burley tobacco,
22 flue-cured, Turkish tobacco, as well as some
23 processed tobaccos. We'll talk more about some of
24 the processed tobaccos later. That tobacco blend is
25 wrapped in a cigarette paper, a very tightly

1733 1 controlled properties, permeability, as well as
2 basic weight or thickness of the paper, the
3 heaviness of the the paper. Very carefully
4 controlled cigarette paper properties.

5 If you'd turn to the filter end, the
6 filter is actually prepared from a bundle of fibers,
7 large, thousands of fibers collected together.
8 These fibers are typically made of cellulose
9 acetate, made from wood pulp. The fiber bundle is
10 held together by a paper called the the plug wrap.
11 It's the white inner paper here. It looks a lot
12 like tea bag paper. It's very porous, very thin
13 paper.

14 Its sole function is to hold these fibers
15 together into a cylinder. Then this filters
16 assembly with a plug wrap around it is attached to
17 the tobacco rod with a tipping paper. And that's
18 the paper that's often cork-colored, sometimes it's
19 white, but often cork. The tipping paper you said
20 overlaps three or four millimeters on to the tobacco
21 rod where it's glued to hold the filter assembly and
22 tobacco rod assemble together.

23 Q. Have you also prepared a chart that will
24 help you explain to the jury what happens when a
25 cigarette is lit and smoked?

1734 1 A. Yes.

2 Q. And would you go ahead and explain to the
3 jury, then, what that chart depicts?

4 A. Sure. I said just a minute ago that the
5 cigarette appears to be a simple consumer article.
6 When the cigarette is lit, the chemistry and the
7 physics is exceedingly complex, and what I've --
8 what I've got here is just the front section of a
9 burning cigarette. It's this section right here.

10 The colored section refers to the fire
11 cone or the hot region. The cigarette or tobacco
12 rod is further back here. Now, during a puff on a
13 burning cigarette, most of the air comes into the
14 cigarette at the base of the fire cone, the base of
15 that hot burning coal. Because that's the lowest --
16 the least path of resistance. It's easier for air
17 to come in there. Because this is a very high
18 temperature region.

19 And you'll notice that the temperatures
20 in the center of this fire cone get up to about 800
21 degrees Celsius. That's about 1400, 1,500 degrees
22 Fahrenheit. So it is quite hot. There's some ash on
23 the outside which actually acts as an insulator to
24 hold some heat in. As the air is drawn in through
25 the cigarette in the base of the fire cone, the

1735 1 oxygen is burned. The remaining gas is heated to
2 very high temperatures.

3 That hot gas then continues down into the
4 tobacco rod where it heats tobacco. Now, the hot
5 gas heats tobacco to the point where the tobacco
6 starts to decompose. And when it decomposes, it
7 generates a lot of gas phase materials, a lot of
8 compounds, a very complex mixture.

9 Then as those vapor materials and the
10 decomposition of the tobacco continue further down
11 the tobacco rod, those gases cool. And when they
12 cool, they condense and form little small droplets,
13 very tiny, tiny droplets. They're on the order of a
14 few microns in diameter. They're really so small
15 you can't see the droplets. And that's the smoke
16 formation process. Because the smoke, itself, is a
17 collection of these little droplets suspended in a
18 residual gas base medium.

19 So the smoke is actually formed down here
20 in the tobacco rod from this heating, not out here
21 in the fire cone region or the coal region. The
22 coal really serves as a heat exchanger to ultimately
23 heat the gas, causes the tobacco decomposition and
24 forms the smoke.

25 Once the smoke is formed in this region,

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1 then some of those smoke particles can be filtered
2 by the tobacco shreds or the tobacco column, itself.
3 Some air is drawn in through the cigarette paper
4 which dilutes the smoke. Some light gases, like
5 carbon monoxide, nitric oxide and a few others will
6 diffuse fairly efficiently out of the cigarette
7 through the cigarette paper because it's a very
8 porous paper. And then the result at the mouth end
9 of the cigarette is what we call mainstream smoke.

10 So what I -- what I intend to show here
11 is that it's a very complex process. The heating
12 rates are extremely high. The cooling rates are
13 extremely high. It's very complex chemically and
14 physically.

15 Q. Okay. Dr. Townsend, one more chart
16 before you take your seat. Have you prepared a
17 chart that depicts the major groups of components in
18 the smoke of Salem cigarettes?

19 A. Yes.

20 Q. And would you please explain to the jury
21 what is depicted on that chart?

22 A. Well, I said in an earlier answer that
23 cigarette smoke is extremely complicated, more than
24 5,000 compounds we know. What this is is a
25 simplification of the composition of cigarette

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1 smoke. If you take all of the smoke that comes out
2 the mouth end of the cigarette, filter end of the
3 cigarette, and we ask the question what's in it? It
4 turns out that about 60 percent of that smoke is
5 nitrogen, about 16 percent is oxygen. So there's a
6 lot of air in there, in the smoke.

7 There's a small amount of others, air
8 compounds like argon that are naturally present.
9 There's about 11, 12 percent carbon dioxide that
10 comes from the combustion process, itself. There is
11 about nearly four percent carbon monoxide from the
12 combustion process.

13 There's a very complex mixture of other

14 gas phase compounds. Very, very complex, there are
15 thousands of them of other gas phase compounds.
16 They comprise for Salem about 1.6 percent of
17 mainstream smoke. About .3 percent of that smoke is
18 nicotine, and about 3.8, nearly four percent is what
19 we call tar. Now, also this tar fraction is a very,
20 very complex mixture with thousands of different
21 constituents.

22 Q. Dr. Townsend, you want to take your seat
23 for at least a couple of minutes. We'll give you a
24 break. Now, most people have heard the term "tar."
25 Is tar the same thing as smoke?

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1 A. Well, no, it's really not it. Smoke is
2 the collection of these particles suspended in a gas
3 phase. So it's really the same as if you see fog
4 out in a field. It's -- in that case, it's water
5 particles suspended in the air. Smoke is that
6 collection of particles suspended. Tar is actually
7 an arbitrarily defined term where you collect the
8 particulates or those particles, and somehow measure
9 the amount of particles that's present in the smoke.

10 Q. And how do you measure tar in cigarettes?

11 A. Well, there's a very, very carefully
12 defined protocol for that. It's called the FTC
13 smoking method. Under the FTC prescription for
14 measuring tar, nicotine and carbon monoxide, a very,
15 very specific type of smoking machine is set up to
16 generate a puff. The puff is 35 cc's in volume,
17 taken once a minute, and the puff duration is a
18 two-second puff duration. So it's a very carefully
19 controlled smoking machine.

20 The smoke that then comes out of the
21 cigarette under that smoking protocol is passed
22 through a very efficient glass filter pad called a
23 Cambridge pad. This Cambridge pad will remove 99.9
24 percent of the particles that's present in the
25 smoke, it's that efficient. So all the smoke goes

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1 through, the particles are trapped on the pad.

2 The pad is then removed by the operator,
3 and then we conduct a couple of analyses. The first
4 is we determine how much water is on the pad. Once
5 we know that, we then measure how much nicotine is
6 on the pad. And FTC tar is defined as the total the
7 amount of particles caught on the pad, the weight,
8 minus water and minus the nicotine. So it's very --
9 it's arbitrary and carefully defined.

10 Q. Using that FTC standardized test method,
11 Dr. the Townsend, how much tar did the average
12 cigarette produce in 1955?

13 A. In the early '50s, around 1954, 1955, the
14 average cigarette in the United States would deliver
15 about 38 or thereabouts milligrams per cigarette,
16 38.

17 Q. And using that same measure, what does
18 the average cigarette on the market today produce in
19 terms of tar?

20 A. The sales weight average cigarette tar
21 yield today is about 12 milligrams per cigarette.
22 So it's gone from 38 down to 12.

23 Q. And what about nicotine?

24 A. Well, nicotine has also declined in a

25 similar fashion, almost parallel. In the early

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1 '50s, the nicotine yield from cigarettes was about
2 2.8 to about 3 milligrams per cigarette. Today the
3 sales weighted average is about 12.9.

4 Q. That's quite a substantial reduction,
5 Dr. Townsend. Who -- did Reynolds accomplish this
6 reduction in its cigarette design efforts?

7 A. Reynolds used cigarette design to
8 accomplish that major reduction in tar and nicotine
9 yields.

10 Q. Okay. We're going to get into some of
11 the specific methods in a minute, but let me ask
12 you, was it a simple matter to accomplish this the
13 end result?

14 A. No, it wasn't simple at all.

15 Q. Why don't you explain to the jury why it
16 was not simple.

17 A. Well, technically, one can go in and make
18 certain design changes to a cigarette. But
19 ultimately, that cigarette has to be acceptable to
20 the consumer. And many of the changes that we've
21 developed, modifications, changes in cigarette
22 design, we've found are not acceptable to the
23 consumer. So by trying to maintain some reasonable
24 consumer acceptance of the product, I think it's
25 narrowed the possibilities of cigarette design, but

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1 nevertheless, we've found a number of designs, and,
2 in particular, combinations of the designs that work
3 together that have caused -- caused that major
4 reduction in tar and nicotine yields.

5 Q. And this was all part of the work that
6 Reynolds did in response to the concerns expressed
7 by the public health community?

8 A. Yes.

9 Q. As a part of that, Dr. Townsend, did
10 Reynolds find it necessary to first identify as many
11 of the constituents of smoke as possible?

12 A. Well, sure. In addressing the smoking
13 and health issues, we certainly felt that it was
14 important to know as much about the composition of
15 that smoke as possible.

16 MR. DAVID: Your Honor, may the witness
17 step down?

18 JUDGE CARLSON: Yes.

19 Q. (By Mr. David) Dr. Townsend, would you
20 step down, please. Dr. Townsend, have you prepared
21 a chart that would assist you in explaining to the
22 jury a bit about the history of what we know about
23 the individual constituents of cigarette smoke over
24 time?

25 A. Yes.

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1 Q. That chart has been marked as DWN 000122.
2 Would you explain to the jury, Dr. Townsend, what
3 this chart depicts?

4 A. Sure. What this chart shows, this graph,
5 is actually the number of known compounds reported
6 in cigarette smoke. And if you'll notice back here
7 in the early '50s, scientists knew of somewhere in
8 the neighborhood of 90 to 100 different compounds
9 present in cigarette smoke. And today we know more

10 than 5,000. So there's been a dramatic increase in
11 the number of known compounds.

12 That increase is directly attributable to
13 our ability as chemists to analyze that kind of
14 complex mixture where the constituents are present
15 at such low levels. And in particular, in the '50s,
16 one of the main tools that chemists used was a --
17 was a separation technique called column
18 chromatography. Very difficult, very tedious, and
19 actually could -- was able to separate only the
20 larger -- the highest amount compounds in smoke.

21 In the '60s and '70s was the development
22 of gas chromatography which is one of the main
23 working tools of analytical chemists. And you'll
24 notice as a result of that there was some
25 substantial increase in the number of compounds.

1743 1 Then coupling cast chromatography with glass
2 capillary columns for separations you see made a big
3 increase -- resulted in a big increase in the number
4 of known compounds.

5 And, in fact, scientists at R. J.
6 Reynolds were instrumental in the development of
7 this technique long before scientists at
8 universities were into it. Because this was an
9 important tool for scientists at Reynolds. And then
10 finally coupling that together with mass
11 spectrometry you see allowed a further increase in
12 the number of known compounds. So the number of
13 compounds that we know about that are present in
14 smoke is a direct result of our improved analytical
15 capabilities.

16 Q. Why did it take so long, Dr. Townsend, to
17 identify these constituents?

18 A. Well, I think there's two reasons. One
19 is, again, it's a very complex mixture, very
20 difficult to analyze compounds at these low
21 levels. The second reason is because these
22 analytical tools had to be invented, developed and
23 refined to allow us to identify these. And as I
24 said, we were actually pioneers in some of these
25 analytical techniques.

1744 1 Q. Okay. Why don't you take your witness
2 stand.

3 A. Thank you.

4 Q. What extent, Dr. Townsend, did Reynolds
5 contribute to the identification of smoke
6 constituents?

7 A. Scientists at Reynolds have identified in
8 the neighborhood of half or slightly more than half
9 of the known compounds in cigarette smoke.

10 Q. Have all of the constituents or
11 components of cigarette smoke been identified now?

12 A. No.

13 Q. Why not?

14 A. I'm certain there are thousands more at
15 trace levels, and I think as our analytical
16 techniques get better and better and better, we can
17 see more and more things in smoke.

18 Q. Is the fact that cigarette smoke contains
19 a thousand or thousands of chemical compounds
20 something that is unique to cigarette smoke?

21 A. No, I don't think it's unique at all. I
22 think any kind of biological or natural product, any
23 natural product is very complex. For example, any
24 organic material, like leaves or tea or coffee
25 certainly contain thousands of compounds as well.

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1 Q. Dr. Townsend, Dr. Burns has testified
2 there are carcinogens in cigarette smoke. Do
3 cigarettes contain chemicals that have been ID as
4 carcinogens?

5 A. Absolutely.

6 Q. How long has it been known that cigarette
7 smoke contains carcinogens?

8 A. I think it was suspected way before the
9 '50s. Certainly the research, both at Reynolds and
10 outside Reynolds, got underway intensely in the
11 '50s. We've known that there are carcinogens
12 identified in cigarette smoke since the early '50s.

13 Q. And has Reynolds published papers in the
14 scientific literature that ID carcinogens in smoke
15 that identify carcinogens in smoke?

16 A. Yes.

17 Q. Is cigarette smoke the only chemical
18 mixture that contains carcinogens?

19 A. No, not at all.

20 Q. Now, does Reynolds add carcinogens to
21 smoke?

22 A. No, we don't.

23 Q. How does it occur?

24 A. Carcinogens are present in smoke as a
25 result of the combustion process. For example,

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1 let's take one compound as an example. Benzpyrene
2 is -- is an animal carcinogen. And it may be a
3 human carcinogen, we're not sure. But it certainly
4 is an animal carcinogen. And it's not present in
5 tobacco, but it is present in smoke. So it's a --
6 it's a result of the combustion process, itself,
7 that forms this new compound in smoke that wasn't
8 present in tobacco.

9 Q. Are you aware of any substance that has
10 been as intensely studied as cigarette smoke?

11 A. No, it's my opinion that cigarette smoke
12 is the most intensely, most completely studied
13 material. And I think the reason is because there
14 are risks to smoking, because there's so much
15 research been conducted because of the risks.

16 Q. Are all cigarettes the same,
17 Dr. Townsend?

18 A. No, they're really not. They may appear
19 to be the same from -- on the outside. But the
20 cigarette designs are really quite different. And
21 it's those differences in cigarette designs that
22 allow us, as product developers, to provide products
23 with different tar levels, different nicotine levels
24 and also with different other attributes, like, for
25 example, less environmental tobacco smoke, more

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1 simplified chemistry.

2 Q. What steps does a cigarette designer go
3 through when looking at the task of developing or
4 modifying a particular cigarette design?

5 A. Well, there are three major steps. The

6 first is -- and I think this applies to anything,
7 not only cigarette design -- but you have to know
8 your objective. What is it you are trying to
9 achieve, a clear statement of the objective for the
10 cigarette design change.

11 The second thing is to fully go into the
12 laboratory once you know what you're trying to
13 accomplish, go into the laboratory and evaluate all
14 the options. You look at different designs. You
15 look at different design variables in combination
16 with one another, and you see what really works and
17 make sure that it's reproducible.

18 And then third, the third major step is
19 to evaluate its commercial feasibility. For
20 example, can that product be made reproducible in a
21 factory? Can it meet regulatory hurdles and
22 specifications? Is the product reproducible at all?
23 Have you accomplished the objective and so it's
24 really the commercial feasibility. And especially
25 for the commercial feasibility is it acceptable to

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1 the consumer? Because if we make these design
2 changes and that product with those changes is not
3 acceptable to the consumer, we really haven't
4 accomplished our objective.

5 Q. Now, focusing on the first step, the
6 design objective, what are some examples of specific
7 design objectives?

8 A. Well, one of the obvious design objective
9 is to reduce tar and nicotine. Another objective
10 might be to eliminate a compound or a class of
11 compounds from the smoke. Another design objective
12 might be to have a consumer acceptable product that
13 has less environmental tobacco smoke. Another
14 design objective might be to have a cigarette -- a
15 very different cigarette that minimizes the
16 biological activity or may reduce the risk of
17 smoking.

18 Q. And moving to the second step, can you
19 give us an example of how you need to access the
20 effect of each design choice.

21 A. You mean how you do that?

22 Q. Yes, sir.

23 A. Well, certainly you go into the
24 laboratory, and you make sure that in the
25 laboratory, from prototypes that are built in small

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1 volume, make sure that you can accomplish the
2 objective, that you see the reductions that you
3 intended to see. Make sure that there are no
4 surprising consequences.

5 For example, you may try to reduce one
6 compound, and you may see another compound get
7 higher. So it's a thorough evaluation of the
8 chemistry, also an evaluation of the biological
9 aspects of it, too. And there are a number of
10 biological assays that we use to evaluate cigarette
11 design changes.

12 Q. And you indicated that consumer
13 acceptance is a factor in cigarette design; is that
14 correct?

15 A. Oh, I think consumer acceptance is a
16 critical factor. Because if it's not acceptable to

17 the smoker, to the consumer, I don't think you've
18 done anything useful in modifying those cigarettes.

19 Q. Can you give me a list of factors,
20 Dr. Townsend, that affect the consumer acceptability
21 of a cigarette?

22 A. There's quite a large list of factors
23 that I think are important to the consumers. Let me
24 give you just a few of them. Obviously the taste,
25 the taste characteristics, certainly the burn rate.

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1 Consumers really object to cigarettes that burn too
2 fast or too slow, ash characteristics, the pressure
3 drop or draft, we call it, which is how hard it is
4 to draw on the cigarette. There's a very narrow
5 range.

6 Certainly the -- another example is
7 the -- is the relative tar to nicotine yields. If
8 the tar to nicotine yields are greatly different, if
9 the ratio of the two is greatly different, then we
10 find those are not acceptable products to smokers.
11 There's quite a variety of attributes.

12 Q. Can you give the jury an example of
13 cigarettes that have failed to achieve that type of
14 consumer acceptance?

15 A. There's quite a large list. Let me give
16 you a few. One is Premier, and Premier was a
17 radically different cigarette design that heated
18 tobacco and didn't burn tobacco. And it failed in
19 the marketplace primarily because of -- of very
20 unique taste, that taste was not acceptable to
21 smokers. It also had some really adverse aromas
22 coming out of it as well. It didn't smell good.
23 That failed in the market.

24 One of our competitors marketed a product
25 called "Next" which had very, very, very low

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1 nicotine yields. So it had normal tar levels, but
2 they had removed the nicotine, and there were only
3 trace levels or very small levels, very low levels
4 of nicotine remaining. That product failed in the
5 market as well, and then there are others. We've
6 had some with reduced environmental tobacco smoke
7 that have failed in the market, again, because
8 of different taste characteristics.

9 Q. Now, you've testified, Dr. Townsend, that
10 smoking and health issues have influenced or guided
11 cigarette design efforts over the years. Did the
12 smoking and health issue provide clear guidance for
13 smoke design?

14 A. The smoking and health literature was
15 certainly important, and we've looked to it very
16 closely in helping guide our cigarette design
17 efforts, but I wouldn't say it's been clear
18 guidance. Because if you look at the smoking and
19 health literature, there are quite a lot of
20 different hypotheses. There are different theories
21 about why cigarette smoking is so risky.

22 And there are different opinions among
23 the scientists outside the industry about why that's
24 the case. So I think it's been very important.
25 There have been some good ideas that have come out

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1 of that, but there certainly wasn't consistent

2 guidance, because they -- the scientists all have
3 very different theories.

4 Q. For example, have there been suggestions
5 by members of the scientific community by what the
6 nicotine yields of cigarettes should be?

7 A. Completely different suggestions, yes.

8 Q. Some recommended lower nicotine yields,
9 and others recommended higher nicotine yields?

10 A. Well, that's right. There are some in
11 the scientific community, for example, Professor
12 Mike Russell, in London, who said a safer cigarette
13 might be one that has normal nicotine levels, but
14 you reduce the tar level as much as possible.
15 Because of all these compounds that are present in
16 the tar. There are others who advocate keeping the
17 tar level the same and reducing the nicotine to
18 nothing or almost -- or almost zero. So they're
19 complete opposite's in direction.

20 Q. Dr. Burns testified in this case that one
21 way companies could make a less hazard hazardous
22 cigarette would be to keep the tar level low and add
23 nicotine. Has Reynolds looked at that?

24 A. Yes, we have, of course, in a number of
25 different projects. And in fact, that's similar to

1753 1 what I was just referring to with Professor Russell
2 in London. It's -- it was -- it's an approach to
3 what might be a reduced risk cigarette. We've had
4 multiple projects to look at it. Unfortunately,
5 we've yet to build a product that is consumer
6 acceptable that has dramatically changed tar to
7 nicotine ratio in that way.

8 Q. Still working on it?

9 A. Yes.

10 Q. Doctor, did the increasing number of
11 identified cigarette smoke constituents also affect
12 cigarette design?

13 A. Well, it did, because as we knew more
14 about what was present in cigarette smoke, that
15 ultimately yields more theories about why cigarette
16 smoking is risky.

17 Q. All right. And the jury has heard a lot
18 about mouse skin painting and the mouse skin
19 painting experiments from the '50s. Did the 1950s'
20 epidemiological studies in mouse skin paintings
21 affect consumer demand for cigarettes?

22 A. It did, I think. Certainly in the early
23 '50s when the first successful mouse skin painting
24 was reported by Wynder and the first -- and the
25 strong epidemiology became clear and was reported in

1754 1 the literature, I think that created quite a lot of
2 popular press which further increased people's
3 concerns about the risks.

4 I think there were many concerns before
5 that, but that further increased people's concerns.
6 People in the public health community started
7 advocating lowering tar and nicotine levels, and a
8 number of scientists were advocating eliminating or
9 reducing the levels of a number of different
10 compounds in smoke, so I think there --

11 Q. These studies were important to Reynolds
12 in terms of cigarette design efforts?

13 A. Very important in cigarette design.
14 Q. And why was that?
15 A. Because it was important for us to look
16 at each of those theories, to look at each of those
17 approaches, including tar and nicotine reduction,
18 including specific reduction of different
19 constituents in the smoke to reduce the risks of
20 smoking. There's no question that cigarette smoking
21 is risky.

22 Q. What major approaches did Reynolds take
23 in its cigarette design efforts in order to respond
24 to the scientific concerns and to the consumer
25 concerns?

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1 A. There were two major approaches. The
2 first was selective reduction, what I'll call
3 selective reduction. And what that is is trying to
4 go in through cigarette design, and reduce or
5 eliminate one compound that might be the problem or
6 a class of compounds that might be the problem. So
7 essentially, you're going in with a scalpel and
8 trying to carve out those things that you think
9 might be the -- the problem.

10 The second major approach is what I call
11 general reduction. And general reduction is
12 reducing all of the compounds in smoke by virtue of
13 just simply reducing the tar and nicotine yields
14 through cigarette design.

15 Q. Were these two approaches explored at the
16 same time or different times?

17 A. They've been conducted simultaneously
18 since the early '50s at Reynolds.

19 Q. And they're ongoing?

20 A. They're both ongoing, definitely.

21 Q. Dr. Townsend, now I'd like to turn to
22 some selective reduction research that you were
23 referring to just before. Could you explain to the
24 jury the theory behind selective reduction?

25 A. Well, selective reduction I think I've

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1 already touched on this just a minute. Selective
2 reduction is -- is based on the theory that there's
3 one compound or a class of compounds that might be
4 the problem. That might be why cigarette smoking is
5 risky. And then selective reduction is -- is going
6 into the lab to figure out cigarette designs that
7 would accomplish that reducing -- reducing that
8 compound or that class.

9 Q. In general, how can selective reduction
10 be accomplished in terms of cigarette design
11 strategies?

12 A. Well, it can be accomplished in several
13 ways. Selective reduction -- for example, selective
14 reduction can prevent the formation of some of these
15 compounds. And I used benzpyrene a minute ago as an
16 example. It's not present in tobacco, but it is
17 present in smoke. So one way to selectively reduce
18 is to prevent its formation. Another way to
19 selectively reduce a compound is once it's in the
20 smoke try to somehow remove it with a filter
21 additive, or a tobacco additive or some other
22 mechanism.

23 Q. What was the first constituent of

24 cigarette smoke that was targeted by the scientific
25 community for selective reduction?

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1 A. The first was benzpyrene.

2 Q. What is benzopyrene?

3 A. Benzpyrene is a pound that belongs to a
4 class called polycyclic aromatic hydrocarbons.
5 Benzpyrene is an animal carcinogen. It's on the IR
6 carcinogen list. It may be a human carcinogen as
7 well, but certainly animal carcinogen.

8 Q. Do you know whether in the popular
9 scientific literature the presence of benzpyrene in
10 smoke had been reported in the 1950s?

11 A. Yes, I do.

12 Q. What do you know about that?

13 A. Well, actually benzpyrene had been
14 postulated or suspected to be in smoke before 1950,
15 because benzpyrene was known to be produced in
16 combustion systems. Whether it's burning leaves, or
17 burning carbon or whatever, benzpyrene is formed.
18 So it was a reasonable assumption that benzpyrene
19 might be formed in a burning cigarette. In 1950 in
20 "Reader's Digest," there was an article, again,
21 reporting that benzpyrene is probably in cigarette
22 smoke. There were a number of scientific
23 investigations over the '50s, particularly in the
24 early '50s, trying to identify benzpyrene in
25 cigarette smoke, and it was identified.

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1 Q. At what sort of levels was it identified?

2 A. Well, we found that benzpyrene is present
3 in cigarette smoke at the nanogram level.

4 Q. Can you explain for the jury and for me,
5 frankly, what a nanogram is?

6 A. Sure. A nanogram is a billionth of a
7 gram. Let me try to put it in a little more
8 perspective. A gram is about -- about the weight of
9 a package of Equal. It's 1/28th of an ounce. So a
10 package of Equal is approximately one gram. A
11 nanogram is a billionth of that, a billionth of a
12 gram. And benzpyrene is present in cigarette smoke
13 at the nanogram or billionth of a gram level per
14 cigarette.

15 Q. Okay. Is benzpyrene present in other
16 things that we eat or drink on a regular basis?

17 A. Well, it is. It's certainly present
18 in -- as I said, it's generated in pretty much any
19 combustion system. So it's present in air,
20 particularly in large cities. It's present in
21 foods, particularly grilled foods, barbecued foods,
22 for example, charcoaled steak, charcoaled chicken.
23 Pretty much anything that's around a combustion
24 system, you can analyze and find benzpyrene.

25 Q. What did the researchers at Reynolds do

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1 with respect to benzpyrene?

2 A. Well, we did three things. First of all,
3 we set out to determine if benzpyrene is present in
4 cigarette smoke. And we found, indeed, it is. Then
5 we, second, tried to determine the level, how much
6 of it's present in cigarette smoke, and we found
7 that it is present in the nanogram per cigarette
8 levels. And then the third thing is we set out

9 multiple programs to try to reduce or eliminate that
10 compound in cigarette smoke.

11 Q. Was it hard to identify benzpyrene and
12 then how much was in cigarette smoke?

13 A. It's very difficult. Particularly back
14 in the '50s, again, we had fairly primitive, by
15 today's standards, anyway, primitive chemical
16 analysis techniques. So it was very difficult.

17 Q. In were others outside of Reynolds also
18 researching benzpyrene in smoke, cigarette smoke?

19 A. A number of others were, both within the
20 industry, as well as scientists outside the
21 industry, for example, Professor Wynder and
22 Professor Hoffman.

23 MR. DAVID: Your Honor, may I approach
24 the witness?

25 JUDGE CARLSON: Yes.

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1 Q. (By Mr. David) Dr. Townsend, I'm going
2 to hand you what has been marked and admitted into
3 evidence as Plaintiff's Exhibit 679. Ask you to
4 take a look at that document.

5 A. (Examining.) Okay.

6 Q. Are you familiar with the document?

7 A. Yes.

8 Q. What is it, please?

9 A. It's a -- it's an internal R. J.
10 Reynolds' memorandum, and the author is Allen
11 Rodgman, Dr. Allen Rodgman, and it's to Mr. Kenneth
12 Hoover. The title of it is "the Optimum Composition
13 of Tobacco and Its Smoke."

14 Q. Does it talk about benzpyrene?

15 A. Yes, it does.

16 Q. What does it say, please?

17 A. It says, "As described in RDR 1956,
18 number 9" -- that's an internal designation for one
19 of our reports -- "We at the Reynolds Tobacco
20 Company research department corroborated with
21 published findings with respect to 3, 4 benzpyrene,
22 which is benzpyrene, obtained as a compound in
23 crystalline form and positively identified it as a
24 constituent of cigarette smoke and positively
25 identified it on the basis of its physical and

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1 chemical properties."

2 Q. Anything else about benzpyrene in there?

3 A. Well, it says -- there's several other
4 things. It talks about there are a number of others
5 polycyclic hydrocarbons that have been identified in
6 this laboratory, Reynolds laboratory. And it also
7 talks about a number of ways to try to reduce
8 benzpyrene. In particular, there's one, two,
9 three -- there are five different techniques.

10 Q. What are those techniques, please?

11 A. What are they?

12 Q. Yes.

13 A. Well, the first one speaks to an
14 extraction process to try to remove the precursor
15 that's in tobacco that ultimately forms benzpyrene.
16 By extracting that the precursor out of the to be
17 before it's made into a cigarette. Another is a
18 variation of the type and length of filter tips or
19 filter material to try to reduce tar level, to

20 reduce benzpyrene as well. Variation of the type of
21 cigarette paper to modify the formation of
22 benzpyrene, to reduce the formation.

23 Fourth is to use the -- use additives
24 such as hydrated aluminum, various nitrates,
25 catalytic agents and so forth to try to prevent its

1762 1 formation. And fifth, the use of certain tobacco
2 types that yield low smoke solids or low
3 particulates and low benzpyrene.

4 Q. Has Reynolds utilized all those
5 techniques in an effort to reduce benzpyrene?

6 A. We've had multiple projects to evaluate
7 all of these techniques.

8 MR. DAVID: May I approach, Your Honor?

9 JUDGE CARLSON: Yes.

10 MR. DAVID: Thank you.

11 Q. (By Mr. David) Dr. Townsend, have you
12 prepared a chart that would help illustrate the
13 various techniques that Reynolds has utilized in an
14 effort to selectively reduce benzpyrene?

15 A. Yes, I have.

16 MR. DAVID: Your Honor, may the witness
17 step down?

18 JUDGE CARLSON: Yes, sir.

19 Q. (By Mr. David) What does the chart
20 depict, Dr. Townsend?

21 A. This chart actually speaks to some of the
22 major approaches that we've used at Reynolds to try
23 to reduce benzpyrene, benzpyrene I'll just shorten
24 here to BaP. The first is the use of tobacco
25 additives to try to prevent the formation. Again,

1763 1 if you can prevent it being formed in the first
2 place, you can effect, at least I would think you
3 could effect a reduction.

4 So the idea is to put certain types of
5 additives on the tobacco to change the combustion
6 temperature, or somehow change the combustion
7 process to prevent the formation.

8 Another is selective filtration, that is
9 once it's in cigarette smoke, benzpyrene is formed,
10 it's in cigarette smoke, how can you selectively
11 pull it out before it exits the cigarette. Either
12 through the use of different filter materials or the
13 use of different filter additives, things that are
14 placed in the filter.

15 The use of different cigarette papers to
16 try to prevent the formation, again largely by
17 changing the combustion process in the neighborhood
18 of where all that complex chemistry goes on. And
19 then finally, the use of tobacco extraction to
20 remove the precursors. There was something in
21 cigarette -- in tobacco that ultimately formed
22 benzpyrene when it was heated. So we established an
23 extensive research program to identify what those
24 precursors are. We did that. We found solvents
25 that would extract those precursors in an attempt to

1764 1 try to reduce benzpyrene.

2 Q. Let's discuss each one of those
3 techniques just briefly, Dr. Townsend. What did the
4 work with tobacco additives involve?

5 A. Well, we looked at a number of additives,
6 including metals like palladium, platinum, erodium,
7 nitrates, magnesium nitrate, for example, as well as
8 a variety of others, alumini, diatanatiuous earth,
9 anything that we thought chemically might change the
10 combustion process. And we found that nitrates, in
11 particular, did affect some of the reduction of
12 benzpyrene.

13 Q. Any of the other nitrates of the
14 additives work?

15 A. Some worked of him many of the metals,
16 like palladium and platinum, as a cigarette designer,
17 I wouldn't put palladium and platinum in my
18 cigarettes.

19 Q. Did some individuals in the scientific
20 community recommend the use of magnesium nitrates?

21 A. Oh, they did. There were a number of
22 recommendations particularly from Professor Wynder
23 and others at the time that nitrate might be a
24 viable approach.

25 Q. And was it?

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1 A. Technically, it did reduce benzpyrene
2 somewhat. It did increase the levels of other
3 compounds like nitrosamines and nitric oxide that
4 resulted in the decomposition of the nitrate. So
5 it's one of those cases where we saw a marginal
6 reduction in benzpyrene but other things went up.

7 Q. Did the -- let's take that chart down for
8 just a second. We're going to put it back up again,
9 though. You might want to keep it handy. Let me
10 show you a page that's 14114 from the 1979 Surgeon
11 General's report, Dr. Townsend, see if you can put
12 that up on --

13 A. You want me back up here?

14 Q. No, just stay if you would, please.

15 Thank you. What does that chart state about the use
16 of nitrate the additives in cigarettes,

17 Dr. Townsend?

18 A. Well, first of all, this is a table from
19 the '79 Surgeon General's report. And it's a
20 summary of some of the research that's been
21 conducted both within and outside the tobacco
22 industry. And what it does is in this summary, it
23 includes the use of nitrate additives on tobacco.

24 And it shows that there's a reduction in
25 tar and nicotine. These pluses mean there's a

1766

1 significant reduction, in both tar and nicotine and
2 in benzpyrene, BaP. But it says here, the Surgeon
3 General concluded that that approach is only of
4 academic interest.

5 Q. All right. You want to take that down
6 and put 124 back up?

7 A. Sure.

8 Q. Thank you. Dr. Townsend, with respect to
9 filters and filtration, was Reynolds able to develop
10 fillers that would specifically filter out
11 benzpyrene?

12 A. No, we weren't, and let me tell you why.
13 This was a good idea, but we didn't realize at the
14 time in the '50s when this research was going on
15 that benzpyrene, because it's nonvolatile, can't be

16 selectively removed by filter additives or different
17 filter materials. You can remove benzpyrene only by
18 capturing those particles.

19 For something to be selectively removed,
20 it has to be somewhat volatile, which means it
21 evaporates from the particle and can be absorbed by
22 the filter. So there was an extensive amount of
23 work done here, but I think the scientists were
24 going in the wrong direction there. We eventually
25 learned it and went in other directions.

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1 Q. Describe the next item on your chart,
2 different cigarette papers?

3 A. Well, different cigarette papers,
4 particularly more porous papers. More porous papers
5 let more air come through the paper when the
6 cigarette is puffed, adds more oxygen to the
7 combustion region. As a result of that, you can
8 change the combustion process, itself, and to a
9 small degree can reduce benzpyrene.

10 Q. Okay. And the last item on your chart is
11 extraction. What do you mean by extraction?

12 A. Well, again, there are certain compounds
13 in tobacco that ultimately, when heated, form
14 benzpyrene. Those are called precursors. We did
15 extensive research, particularly with radio tracers,
16 radio isotope tracers, to try to determine what
17 those precursors were.

18 And we identified them as waxes, waxes in
19 the tobacco leaf, particularly salansol and a few
20 others. Those compounds when heated in large part
21 form benzpyrene. So we developed some approaches
22 using solvent extractions, where we take tobacco
23 with say hot hexane and hot pentane and actually
24 extract those waxes out. Try to dry the tobacco,
25 and make cigarettes and, in fact, we saw a major

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1 reduction in benzpyrene from that extraction.

2 Q. How extensive was Reynolds' extraction
3 effort?

4 A. It was a huge effort. We even got to the
5 point of building a pilot plant to process large
6 quantities of tobacco under continuous operations.

7 Q. And at the end of the day, did extraction
8 work?

9 A. Technically, it did. We did see a
10 reduction in benzpyrene. This wasn't a practical
11 approach, however, because the extracted tobacco was
12 too brittle at the end of the day to make
13 cigarettes. It would fall apart into dust as -- any
14 time we tried to make cigarettes out of it, make
15 good cigarettes.

16 The other thing is that there were
17 residual solvents left in the tobacco. We couldn't
18 get all the solvent out. And then there were --
19 because we -- the solvent extracted a number of
20 things in addition to the waxes. It wasn't
21 specific. It really changed the taste
22 characteristics. So we had some practical
23 processing problems as well as some taste problems.

24 Q. What did the Surgeon General conclude
25 with respect to the extraction method?

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1 A. Well, the Surgeon General liked the
2 nitrate. The Surgeon General concluded that this
3 works, but it's only of academic interest as well.
4

Q. All right. Take your seat, doctor.

JUDGE CARLSON: This might be a good
place for a break since the jury has been in place
about an hour or 10 minutes, so ladies and
gentlemen, let's go ahead and take a short recess at
this time.

(A short break was taken.)

(Jury enters courtroom.)

JUDGE CARLSON: All right. Mr. David.

MR. DAVID: Thank you, Your Honor.

Q. (By Mr. David) Dr. Townsend, back to BaP
for just a minute or benzpyrene, did there come a
time when the scientific community began to question
that it was benzpyrene compound that was
questionable for the positive results in the mouse
skin painting?

A. Yes, there was such a time. And if you
remember, the hypothesis was that benzpyrene was the
problem and accounted for the positive mouse skin
painting tumor genicity. Scientists, including
Professor Wynder, in the late '50s, I think
concluded once we knew how much benzpyrene was

1770 present and we knew more about the carcinogenic
potential of benzpyrene, Professor Wynder and others
concluded that there wasn't enough benzpyrene in
cigarette smoke to, by itself, account for the mouse
skin painting results.

Q. And as that benzpyrene hypothesis lost
interest, what was the next theory that tried to
explain how cigarette smoke might cause cancer?

A. Well, the next hypothesis was that there
may be something in cigarette smoke that together
with benzpyrene would account for the activity. In
particular there may be a group of compounds called
promoters that would increase the activity. So
benzpyrene would be the initiator of the tumor
particularly compounds like phenols, would somehow
enhance the activity and be promoters.

Q. Did Reynolds begin work on phenols, as
well as selective reduction then?

A. Yes, we did in the '50s.

Q. And did you abandon your work, then, on
the benzpyrene reduction?

A. No, we continued looking for ways to try
to reduce or eliminate benzpyrene. But what we did
was turn some ever our attention to phenols and try
to selectively reduce phenols and other promoters.

1771 Q. At what levels are phenols present in
cigarette smoke?

A. Many phenols are present in the microgram
level, that's a millionth of a gram per cigarette.
There are other phenols that are present in the
nanogram level, but there are some that are present
in the microgram.

Q. Nanograms are billionth of a gram?

A. Nanogram is billionth of a gram,
microgram is millionth of a gram.

Q. Are phenols unique to cigarette smoke?

12 A. No, phenols are in many natural products,
13 including tea, coffee, a number of places.

14 Q. So what did Reynolds do in response to
15 the claim that it might be phenols that were the
16 problem constituent in cigarette smoke?

17 A. Well, the first thing, we took that
18 hypothesis, that theory, we examined it very
19 carefully. We then went to the laboratory, and our
20 scientists tried to identify if phenols are present
21 in smoke and which phenols are present. And it
22 turns out there are a number of phenols present in
23 smoke. The second thing we set out to do was
24 determine the levels of each of the phenols. That
25 is quantitate the levels. Once that was done, then

1772 1 seek ways to reduce or eliminate the class of
2 compounds called phenols.

3 Q. What techniques did Reynolds then explore
4 or reduce to eliminate phenols?

5 A. Actually, there were a number of
6 techniques, including tobacco additives again to try
7 to change the combustion. Selective removal through
8 different types of filters or different types of
9 materials or additives placed in the filter. We
10 also looked at extraction, as well, to try to reduce
11 or remove the precursors to phenol formation. So
12 the major approaches, the major attacks on this were
13 similar to benzpyrene.

14 Q. And did any meet with success?

15 A. Well, actually, we had some success with
16 some phenols, particularly the more volatile
17 phenols, like phenol, itself, and several others.
18 And those compounds, because they're volatile, could
19 be selectively removed by certain types of filters.
20 Particularly the use of cellulose acetate as a use
21 of filter material will selectively remove phenols
22 from the smoke.

23 And in particular, if you used a certain
24 type of plasticizer, you know, cigarette companies
25 put a plasticizer on the filter to make it firm, and

1773 1 if that plasticizer is tryacitine or carboax, those
2 materials will selectively reduce the phenol level.

3 Q. Did Reynolds incorporate tryacitine in
4 its filters?

5 A. It turns out we already had tryacitine in
6 the filter. It turns out it selectively reduced
7 phenols, but it was already in place in the market.

8 Q. And do the filters for Salems and Dorals
9 contain tryacitine?

10 A. Yes.

11 Q. How did the scientific community react to
12 the selective reduction in phenols which was
13 achieved by these filter additives?

14 A. Well, I think there was acknowledgment of
15 the selective reduction, and then there was new
16 theories for why cigarette smoking is risky.

17 Q. So phenols lost momentum as well?

18 A. Well, I think many in the scientific
19 community turned their attention to other types of
20 compounds.

21 Q. Any new theories emerge then?

22 A. Well, the next major theory was a theory

23 that we call the cilia stasis theory. And that
24 theory is there may be some compounds in cigarette
25 smoke that will disable or somehow, at least even
1774
1 temporarily stop the action of cilia that are in the
2 upper respiratory track.

3 Q. Dr. Burns mentioned the cilia stasis
4 theory. Were cilia stats found to be present in
5 cigarette smoke?

6 A. Yes, there are a number of cilia stats
7 present in cigarette smoke in very low levels, but
8 they're there.

9 Q. Are they unique to cigarette smoke?

10 A. No, they're not. Many of the cilia stats
11 were of a class of compounds we called aldehydes and
12 carbonyls, carbonyls, ketones. So those compounds,
13 many of those compounds are thought to be cilia
14 stats. Nitrous oxide is also thought to be a cilia
15 stat. That's present in air pollution as well.
16 These aldehydes are often present in many foods and
17 the air as well.

18 Q. So what was Reynolds' response to this
19 cilia stasis theory?

20 A. Well, we, again, sought to identify those
21 compounds that were thought to be cilia stats, then
22 we quantitated the levels to determine how much was
23 present. And then sought ways to reduce or
24 eliminate them. And took a number of different
25 approaches, again using tobacco additives, but more

1775
1 particularly using filter additives to try to reduce
2 these cilia stats.

3 Q. And did Reynolds ultimately actually
4 market a cigarette that addressed the cilia stasis
5 theory?

6 A. We and all of our competitors in the
7 tobacco industry had a number of products in a
8 reduced some of these cilia stats.

9 Q. What was the product that Reynolds had
10 marketed?

11 A. Well, the product that Reynolds marketed
12 was a product -- the brand that was Tempo, and Tempo
13 was a carbon filtered product. Many people call it
14 charcoal filtered. It's not really charcoal. It's
15 activated carbon. And the activated carbon will
16 efficiently -- efficiently remove these volatile
17 aldehydes and ketones of the carbonyl group.

18 Q. And did the carbon filter -- how did the
19 carbon filter cigarettes do in the marketplace?

20 A. Well, there was some initial interest
21 among smokers. There was a fairly rapid increase in
22 the share of market of all carbon filters, including
23 our product Tempo. But they ultimately failed in
24 the market, and the reason is because American
25 consumers, American smokers really don't prefer the

1776
1 taste of charcoal filtered cigarettes or carbon
2 filtered cigarettes.

3 Q. And do we have a chart, Dr. Townsend that
4 depicts the decline of consumer acceptance in carbon
5 filter?

6 A. Yes, I do.

7 MR. DAVID: Your Honor, can he step down?

8 Q. (By Mr. David) This chart is marked as
9 DWN 000123. And what does that chart depict,
10 Dr. Townsend?

11 A. What this shows is the market share for a
12 number of charcoal filtered cigarettes and then
13 shows the market share for all charcoal filtered
14 cigarettes in the U.S. market. The charcoal
15 filtered cigarettes were introduced in the early
16 '60s as a result of the cilia stasis theory.

17 And you'll notice that there was an
18 increase, slight increase in share of market. If
19 you break out some individual brands, the Reynolds
20 product called at Tempo initially got somewhere
21 around about .4 percent share of the market. So
22 it's quite small. But there was an initial rise in
23 the market share of that product, and then a
24 graduate fall off over the next few years.

25 Lark was the best selling charcoal

1777 1 filtered cigarette. It's still on the market today.
2 It has a minuscule share of the market, but it's
3 still out there. Lark rose to nearly two percent of
4 the market, and then gradually declined.

5 Q. You can take your seat. Are there any
6 charcoal filter brands left on the market today?

7 A. There's a couple. I think Lark is still
8 on the market. It's got, again, a minuscule share
9 in the marketplace. There's always Tarrington that
10 has activated carbon that's dispersed in a cellulose
11 acetate and filter.

12 Q. Was there an adverse reaction to the
13 taste of these cigarettes?

14 A. I think that's the reason it wasn't
15 accepted by the American smokers. The taste is very
16 different. Because this activated carbon
17 efficiently removes these carbonyls, as well as
18 other compounds. It changed the balance of the
19 taste. The taste characteristics are different.
20 That's not -- for some smokers outside the United
21 States, they prefer carbon filters, but for U.S.
22 smokers, for some reason, they don't -- they didn't
23 accept the taste difference.

24 Q. So what's the lesson in that for a
25 cigarette designer such as yourself?

1778 1 A. Well, the main lesson to a cigarette
2 designer or product developer, consumer acceptance
3 is essential if you're going to be successful in the
4 marketplace with cigarette design.

5 Q. Dr. Townsend, you've now referred to
6 methods to remove cilia stats, benzpyrene and
7 phenols, had Reynolds looked at other reduction of
8 smoke components as well?

9 A. Yes, we had.

10 Q. What was one of the next major ones?

11 A. Well, another area of selective reduction
12 is an area called nitrosamines, or an area called
13 tobacco specific nitrosamines.

14 Q. What has Reynolds done to investigate the
15 theory of nitrosamines in smoke?

16 A. Well, we've looked at the theory that
17 nitrosamines may be part of the problem with the
18 risks of cigarettes and smoking. We've identified a

19 number of nitrosamines present, both volatile
20 nitrosamines, as well as a class that we call
21 tobacco specific nitrosamines. We've determined the
22 levels of these nitrosamines, and we've sought ways
23 to reduce or eliminate them.

24 Q. How did they get into tobacco or tobacco
25 smoke?

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1 A. Well, actually nitrosamines aren't
2 present in tobacco when it comes out of the field,
3 so green tobacco has no nitrosamines. The volatile
4 nitrosamines are formed during burning of the
5 tobacco. The tobacco specific nitrosamines are
6 actually formed during the curing of the tobacco.
7 So green tobacco going into a curing barn, there's
8 no nitrosamines, but when it comes out of the curing
9 barn, there are tobacco specific nitrosamines.

10 Q. Now, has Reynolds made any discoveries
11 about the nitrosamines in these tobacco plants?

12 A. Yes, we have. As part of our effort to
13 try to reduce tobacco specific nitrosamines, we
14 tried to figure out how they were formed during this
15 curing process, and we have made a discovery. It
16 turns out that farmers in the United States take
17 liquid propane burners and exhaust the combustion
18 gases directly into the barn.

19 In those combustion gases is nitric
20 oxide, very, very low levels, but it's still there.
21 And the nitric oxide actually reacts with nicotine
22 in the tobacco and other types of alkaloids that
23 come from nicotine to form these specific tobacco
24 nitrosamines. So our discovery was that nitric
25 oxide in the barn was the problem. We've gone back

1780 1 and modified barns to use heat exchangers to keep
2 the combustion gases from the liquid propane burners
3 out of the barn. And what we see is more than a 93
4 percent reduction in tobacco specific nitrosamines
5 in the tobacco.

6 Q. And what are the -- what did Reynolds do
7 with the information once they discovered that these
8 nitrosamines could be decreased by changing these
9 curing practices?

10 A. Well, we did several things. The first
11 thing we did, actually, is invite our competitors to
12 our laboratories, and to our experimental farm and
13 shared with them our discovery. The second thing we
14 did was reproduce our discovery in the field under
15 real life conditions with real tobacco farmers.

16 So we contracted a number of experiments
17 with tobacco farmers, and they reproduced our
18 results exactly under real world conditions. The
19 third thing we did is we made a decision at Reynolds
20 to move to this tobacco specific nitrosamine --
21 well, it's not free, but major reduction, low
22 specific low nitro sa mean tobacco for all our
23 products. So we've begun contracting our farmers to
24 produce our flew cured tobacco only with this heat
25 exchange approach.

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1 Q. And over the years, have other theories
2 occurred?

3 A. Yes.

4 Q. What did Reynolds do to address each of
5 these other theories, if anything?

6 A. In every case, we've looked at the
7 theory, we've addressed them seriously. We've tried
8 to identify the compounds that are involved in these
9 theories. We've tried to determine the levels that
10 they're present in smoke. A lot of detailed smoke
11 chemistry studies, and we've sought ways to reduce
12 or eliminate those compounds.

13 Q. Are you still working on selective
14 reduction today?

15 A. Yes, very much so.

16 Q. Dr. Townsend, would you please summarize
17 for the jury your observations about the work of
18 Reynolds with respect to selective reduction?

19 A. Well, I think the work in selective
20 reduction at Reynolds has been, number one, intense.
21 We've put a lot -- a lot into it. We've had not as
22 much success, of course, as we'd like, because
23 selective reduction is extremely difficult.

24 You're looking at a complex mixture of
25 thousands of compounds, and to -- to somehow change

1782 1 the design of the cigarette to go in and reduce or
2 eliminate only one compound or even one class of
3 compounds is extremely difficult -- difficult.
4 We've had some success, particularly with phenols.
5 We've had, I think significant success with tobacco
6 specific nitrosamines. So there has been some --
7 some success, but it's been an intensive effort.

8 Q. What other problems has Reynolds found
9 with respect to selective reduction other than maybe
10 this moving target or the technical difficulties?

11 A. Well, one of the things that we see in
12 evaluating selective reduction approaches is we see
13 taste differences. If -- you really can change, for
14 example, the carbon filters or charcoal filters that
15 we just talked about. You really see a different
16 taste characteristic, and in general, those types of
17 changes in taste characteristics are not accepted by
18 -- by U.S. smokers. So consumer acceptance has been
19 one of the major problems.

20 Q. At the same time as Reynolds was involved
21 with selective reduction and also your general
22 reduction effort, did Reynolds look into tobacco
23 substitutes?

24 A. Yes, we did.

25 Q. And what do you mean my "tobacco

1783 1 substitutes"?

2 A. A tobacco substitute is an organic
3 material or some kind of natural product that's not
4 tobacco that maybe could be incorporated into the
5 tobacco blend to reduce the risks of smoking.

6 Q. And have you prepared a chart to help you
7 explain this process to the jury?

8 A. Yes, I have.

9 MR. DAVID: Your Honor, may the witness
10 step down.

11 JUDGE CARLSON: Yes.

12 MR. DAVID: Thank you.

13 Q. (By Mr. David) Dr. Townsend, will you
14 tell the jury what the chart depicts, please?

15 A. Yes, this is just really a summary of
16 many of the attempts we've had, we've made at
17 Reynolds to try to develop tobacco substitutes.
18 Again, a nontobacco material that might reduce the
19 risk to smoking.

20 Since 1964, we've thoroughly evaluated
21 about 105 different materials to try to -- to try to
22 reduce the risks. Of those about 72 were original
23 ideas that were developed among our scientists at
24 Reynolds, and about 33 were ideas that came from
25 outside. We have inventors send us ideas from time

1784 1 to time or, in some cases, patent ideas and try to
2 sell them to us. So about 105 ideas.

3 It's a wide variety of things that we've
4 looked at. Including different types of plant
5 leaves, pure cellulose, and pure cellulose with
6 certain types of additives. Trying to simplify the
7 chemistry of the smoke. Because cellulose is
8 chemically very simple.

9 We've looked at puffed grains, very
10 intensive project looking at puffed grains. Because
11 many puffed grains are primarily starch, again, a
12 much simpler material than tobacco. Vegetables,
13 vegetable hulls, carbonaceous materials. We've
14 looked at carbon. Carbon is really quite simple.
15 The combustion of carbon is really quite
16 complicated. But again, trying to simplify the
17 chemistry. We've looked at a number of others
18 including -- I didn't put it on here, but we've even
19 looked at kudzu, so quite a variety of different
20 things.

21 Q. Thank you, Dr. Townsend. Now, was
22 Reynolds alone in exploring tobacco substitutes?

23 A. No, no, we weren't. I think our
24 competitors were looking at tobacco substitutes. I
25 think there was some work even going on outside the

1785 1 industry looking at substitutes as well.

2 Q. Were cigarettes containing tobacco
3 substitutes actually ever marketed?

4 A. Well, they have been. Some of our
5 competitors marketed several brands in the United
6 Kingdom, in England. There also -- there have been
7 some small brands marketed in the United States, and
8 you may have heard of them, some with lettuce
9 leaves, coconut bean hulls or cocoa bean hulls,
10 coconut materials, and others. They really don't
11 get much distribution except in California in this
12 country.

13 Q. What has happened to these cigarettes in
14 the marketplace?

15 A. I think they failed in the marketplace,
16 certainly the large introductions in England, they
17 failed immediately in the marketplace, very
18 different taste characteristic. Consumers just
19 didn't accept those products.

20 Q. Now, Dr. Townsend, I'd like to turn to
21 general reduction techniques that you mentioned
22 earlier that were going on simultaneously with the
23 selective reduction techniques and experimentation
24 and also with the experimentation with respect to
25 tobacco substitutes.

1 What is general reduction?

2 A. General reduction is an approach to try
3 to reduce the risks by reducing the levels of all
4 compounds in the smoke simply by -- well, it's not
5 simple, but conceptually simple simply by reducing
6 the level of tar and nicotine.

7 So if one is successful in making a
8 consumer acceptable product with lower tar and lower
9 nicotine, then you've reduced all of the compounds
10 that are in the smoke, pretty much more or less to
11 the same degree.

12 Q. Was Reynolds encouraged to undertake this
13 general reduction technique by the scientific and
14 public health communities?

15 A. Yes, we were. Beginning in the '50s,
16 certainly, the public health community, the
17 scientific community encouraged Reynolds and our
18 competitors to develop lower tar products. It also
19 encouraged smokers to smoke lower tar products.

20 Q. Did Dr. Wynder express a view?

21 A. Dr. Wynder did express a very strong view
22 about lower tar products.

23 Q. Did he express a target to the reach that
24 might be of significance in reducing the risks of
25 smoking?

1 A. Yes, he did. In the late -- in the late
2 '50s, Professor Wynder actually provided a
3 suggestion in the British Medical Journal. And his
4 suggestion was if the industry and if smokers
5 changed -- if the industry provided products and
6 smokers changed and accepted those products that
7 were 40 percent reduced in tar level, that that
8 would provide a significant reduction in risk of
9 lung cancer, 40 percent reduction. The tar level at
10 that time, the average tar level, was on the order
11 of about 30. So a 40 percent reduction would be
12 down to about 18 milligrams.

13 If it were reduced from 30 down to 18,
14 that would be a significant reduction in can -- in
15 lung cancer risks.

16 Q. And has the industry been successful or
17 has Reynolds been successful in meeting the goals
18 set forth by Dr. Wynder regarding tar reduction?

19 A. We've exceeded the goals. Since the
20 early '50s, we have seen a 60 percent reduction in
21 tar levels from a sales weighted average basis going
22 from about 38 milligrams down to the present level
23 today. The average is about 12 milligrams.

24 Q. Did the scientific community believe that
25 to be significant in terms of reducing the risks of

1 smoking?

2 A. I think many in the scientific community
3 believed that that is significant in reducing the
4 risks. For example, it meets Professor Wynder's
5 prescription of a 40 percent reduction, it actually
6 exceeds it. If one goes back and looks at
7 epidemiology studies, specifically CPS1, CPS2.
8 Epidemiologists have concluded that filtered
9 cigarettes are less risky, pose less risk than
10 nonfiltered cigarettes.

11 There's also a recent article, 1995, I
12 believe, British Medical Journal, by Tank and Wall,
13 two epidemiologists who have evaluated British
14 smokers over a very long period of time where there
15 was a reduction in tar from about 30 milligrams down
16 to about 15 milligrams. And they concluded that the
17 lower tar products were safer. That there had been
18 a significant reduction in the risk of lung cancer
19 certificate.

20 Q. Okay. Dr. Townsend, now, you indicated
21 some disadvantages to the selective reduction
22 techniques. What are some of the advantages of
23 general reduction over selective reduction, and did
24 you prepare a chart in that regard?

25 A. Yes, I did prepare a chart.

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1 MR. DAVID: Your Honor, may the witness
2 step down?

3 JUDGE CARLSON: Yes.

4 MR. DAVID: Thank you.

5 Q. (By Mr. David) How did the general
6 reduction, Dr. Townsend, prove to be superior to the
7 selective reduction?

8 A. Well, first of all, general reduction, I
9 believe, is superior to selective reduction,
10 because, number one, we're finding -- we have found
11 it's technically practical. One can implement these
12 design changes in cigarettes and make products that
13 are acceptable to smokers, so it's practical. The
14 second thing is it addresses all potential target
15 compounds. Instead of trying to reduce one compound
16 that's thought to be the problem, you're reducing
17 all of them.

18 So as hypotheses change, as science
19 develops, you're not jumping from one hypothesis to
20 another; you're addressing all the compounds pretty
21 much to the same degree you're reducing them by the
22 amount of tar reduction. With general reduction,
23 there's no strangers or unintended consequences.
24 The unintended consequences, I mean, for example,
25 try to reduce benzpyrene and something else goes up.

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1 That's an unintended consequence. No strangers in
2 the smoke. An example of that is we used hot hexane
3 to extract the precursors for benzpyrene reduction,
4 if we didn't get all the hexane out, that's a smoke
5 stranger. That's something new. That's something
6 new in the smoke that we've introduced through this
7 processing.

8 And then finally, and very importantly,
9 general reduction we find doesn't change the
10 character of the taste. Now, lower tar cigarettes,
11 the taste is less intense. There's less taste, but
12 the character or the balance of the taste is not
13 substantially changed. So those are the main
14 reasons.

15 Q. Have you prepared another chart,
16 Dr. Townsend, regarding the general reduction
17 techniques that have been utilized by Reynolds over
18 the years?

19 A. Yes, I have.

20 Q. All right. Would you put that up? Thank
21 you. Would you explain to the jury what this chart

22 depicts?

23 A. Yes. This is just a summary of the major
24 techniques that have been employed that we've
25 invented and employed in the marketplace. The first

1791 1 is, of course, and probably obviously, the use of
2 filters. Another is the use of what we call
3 reconstituted tobacco. We'll talk about that in
4 just a minute. The use of expanded tobacco.
5 Another technique is by burning less tobacco, just
6 simply burning less tobacco by virtue of a smaller
7 circumference.

8 So you can make the cigarette smaller,
9 useless tobacco, generate less tar when it burns.
10 The use of filter ventilation, the use of porous
11 papers, and I've spoken about that previously a
12 little bit, and the use of faster burning paper to
13 reduce the number of puffs, and consequently reduce
14 the tar yield.

15 Q. And was each of these techniques
16 successful in bringing about a level of reduction in
17 compounds in cigarette smoke?

18 A. They've all been successful. Some,
19 obviously, are more important than others in
20 bringing the tar yield down. Some of these work
21 together or synergistically in bringing the tar
22 yield down as well.

23 Q. Dr. Townsend, if you could, let's take
24 that chart down. I want to talk with you now
25 about -- about filtration, and did you prepare a

1792 1 chart which will help you to illustrate to the jury
2 the methods of filtration?

3 A. Yes.

4 Q. All right. If you can put that up,
5 please.

6 A. Okay. What I've tried to do in this
7 chart is describe how filters work. How do the
8 filters remove these little particles, these
9 particles that are so small you really can't see
10 them. Let me -- let's in this chart assume this
11 white circle is actually a cross-section of one of
12 these filter fibers, and around that filter fiber is
13 the smoke stream.

14 So the smoke stream is flowing this way,
15 from left to right. And the smoke travels around
16 that circular fiber. Little particles, the smoke
17 particles travel in this smoke stream and are
18 removed by the filter fiber by three mechanisms.
19 The first one is pretty obvious, probably. It's
20 called inertial impaction. As the particle, the
21 smoke particle moves through the flow field, it
22 actually, because of the momentum, either because
23 it's moving fast enough or it's large enough, it can
24 break away from this air stream and collide with the
25 front edge of the fiber.

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1 And because it's primarily a liquid
2 particle, once it collides with that fiber, it
3 sticks, it stays there. Inertial impaction. It's
4 impacting or colliding with the front edge of the
5 fiber. Another mechanism by which particles are
6 removed, we call interception. With this mechanism,

7 the particle is actually following the flow stream
8 around the fiber. It doesn't collide with the front
9 edge. It keeps on going around the fiber, but as
10 it's going around, if it's close enough, it can
11 actually touch. It will touch the side of the fiber
12 and stick, and so it's removed.

13 Now, the third mechanism is one that we
14 call diffusional deposition. It turns out that
15 particularly with particles that are as small as the
16 smoke particles, there's diffusion going on all the
17 time. These particles are pretty much randomly
18 bouncing around. Well, as these particles go around
19 the fiber, even though they're fairly far removed
20 from the fiber, there's a finite probability that it
21 can side step because of this random diffusion, this
22 random movement, it can side step and actually
23 collide with the fiber. That's diffusional
24 composition.

25 Diffusional deposition and inertial

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1 impaction are velocity dependent. The faster these
2 particles are moving, the less likely it's going to
3 be to side step, but the more likely it will be to
4 impact on the front edge. So velocity is important
5 or the speed of the smoke through the filter.

6 Q. And has Reynolds evaluated different type
7 of filter designs?

8 A. Yes, we have developed a large number of
9 filter designs.

10 Q. Do you have a chart that would show
11 those, Dr. Townsend?

12 A. Yes. This is just a summary of a few of
13 the designs that we've looked at and some of the
14 things that are important filters. The first is the
15 type of material. Cellulose acetate is the most
16 common material in the U.S. market. There are some
17 cigarettes with paper filters, polypropylene filters
18 have been investigated or other types of polymers.
19 And the type of -- and the removal efficiencies are
20 directly dependent on the type of material you use,
21 as well as the size of the fibers and the shape of
22 the fibers.

23 In that last chart, we talked about a
24 round fiber. Well, actually, we don't use round
25 fibers. We found that Y-shaped fibers, the Y-shaped

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1 cross-section or a H-shaped cross-section, looks
2 like a "H" are far more efficient in removing
3 particles because of the way it disrupts the flow of
4 the smoke.

5 The other thing is we found that if we
6 crimp the fibers, make them zig zag, that increases
7 the removal efficiency. So there are a number of
8 parameters about the fibers, themselves, the types
9 of materials. Obviously, if you pack more fibers in
10 there, it's going to be more efficient. It will be
11 more efficient filter with more fibers. So fiber
12 density is important. Filter length is important.
13 That's pretty obvious, and over the years we've had
14 a significant increase in filter length among
15 products in the U.S. Also there's some specialty
16 filters, unique filter shapes, unique filter shapes.

17 For example, some with highly efficient

18 filters with air dilution that goes into a center
19 core. This particular filter happens to be a
20 Barkley-type filter that keeps delusion and
21 filtration efficiency separate. But these are
22 specialty filters to accomplish high removal
23 efficiency.

24 Q. All right. Doctor, take the witness's
25 stand. Is there any limit, Dr. Townsend, to the

1796 1 percentage of tar that can be trapped by a filter?

2 A. Well, technically, there's not. It's
3 possible to build a filter that would remove
4 virtually all of the particles or 100 percent of
5 filtration. It's not practical, however, because,
6 number one, if you remove all the particles, there
7 will be no taste left. That's the first thing.

8 The second thing is the pressure drop, or
9 how hard it is to draw through that filter will be
10 extremely hard. It will be like trying to drink a
11 real thick milk shake through a straw, a real small
12 straw.

13 Q. How does the efficiency then of a filter
14 or how can it affect the marketplace performance of
15 a cigarette?

16 A. Well, if the pressure dropped or how hard
17 it is to draw on the filter is out of fair --
18 outside of fairly narrow limits, either on the high
19 side or the low side, those products are not
20 consumer acceptable. So what we've found that we've
21 had to do was we had to incorporate other types of
22 techniques together with fairly efficient or highly
23 efficient filters to accomplish -- accomplish an
24 even further reduction in tar level.

25 Q. All right. And was this filter and

1797 1 filtration technique incorporated into Salem, and
2 Salem Lights and Dorals?

3 A. Yes.

4 Q. Another technique that you mentioned for
5 general reduction was the use of reconstituted
6 tobacco. What is reconstituted tobacco,
7 Dr. Townsend?

8 A. Reconstituted tobacco is actually -- it's
9 a process that Reynolds invented actually in the
10 late '40s to try to take small pieces of tobacco
11 that weren't suitable for cigarette manufacture and
12 make them into larger pieces. So what we did was we
13 developed a process that would take these small
14 pieces and, actually using paper making technology,
15 make a paper sheet, a paper-like sheet out of
16 this -- out of these pieces of tobacco.

17 Which then we could cut up into bigger
18 pieces and make into -- into cigarettes. But it
19 turns out -- that was the original reason for the
20 invention. But it turns out that reconstituted
21 tobacco, because of the types of materials that
22 are -- that it's made from, the types of tobacco
23 materials, particularly some stems and small pieces,
24 generates less tar when it burns, and the biological
25 activity of that tar is reduced.

1798 1 Q. All right. Do you have some
2 reconstituted tobacco with you in the courtroom

3 today?

4 A. Yes, I do.

5 MR. DAVID: Your Honor, may I approach?

6 JUDGE CARLSON: Yes.

7 MR. DAVID: Let the record reflect that
8 this is marked as Exhibit DWN 000151A.

9 Q. (By Mr. David) Dr. Townsend, what is it
10 that I'm holding my hand here as Exhibit 000151A?

11 A. That's a sample of reconstituted tobacco.

12 MR. DAVID: Move into evidence, Your

13 Honor.

14 JUDGE CARLSON: Any objection?

15 MR. MERKEL: I'm sorry. I didn't hear.

16 MR. DAVID: I move it into evidence.

17 (Exhibit DWN 000151A marked for
18 identification and entered into evidence.)

19 MR. DAVID: If you could take a look at
20 that and just pass it on.

21 (Jury examining exhibit.)

22 Q. (By Mr. David) Dr. Townsend, how long
23 has Reynolds been using reconstituted tobacco?

24 A. The first commercial use was in 1954 when
25 we introduced Winston cigarettes.

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1 Q. And what percentage of your commercial
2 cigarette blends consist of reconstituted tobacco?

3 A. Most of our blends actually use
4 reconstituted tobacco, not all, but almost all.

5 Q. And why isn't more reconstituted tobacco
6 used?

7 A. Well, we have a limit of -- we generally
8 put maybe 20 -- as much as 20 or 25 percent of the
9 blend is used as reconstituted tobacco. The limit
10 is -- is because if we get much higher than that,
11 then the taste characteristics change, and those
12 products are not acceptable.

13 Q. And is reconstituted tobacco utilized in
14 Salem, and Salem Lights and Dorals?

15 A. Yes.

16 Q. We've discussed filtration and
17 reconstituted tobacco as general reduction
18 techniques. Earlier you also mentioned the use of
19 less tobacco. Why does this help to reduce tar and
20 nicotine, Dr. Townsend?

21 A. Well, if one uses less tobacco in the
22 cigarette, obviously, you're burning less tobacco.
23 So you would generate less tar because you're
24 burning less tobacco. And ways to accomplish that
25 are reduce circumference and the use of expanded

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1 tobacco and shorter tobacco rods.

2 Q. Did Reynolds also use something called
3 expanded tobacco in its commercial cigarettes?

4 A. Yes, we did. In fact, Reynolds invented
5 the tobacco expansion, the first tobacco expansion
6 process and was first to commercially implement
7 that.

8 Q. Can you explain what expanded tobacco is?

9 A. Sure. Expanded tobacco is tobacco
10 that's -- that's passed through a process that
11 actually increases its -- what we call filling
12 value. It makes the particles of tobacco larger.
13 It expands the tobacco. In fact, the process is not

14 too different than -- than popping popcorn. We
15 impregnate the tobacco with -- in that case, our
16 first invention was the use of -- used freon. Today
17 we use carbon dioxide.

18 So we impregnate the tobacco with carbon
19 dioxide under high pressure. When we release the
20 pressure with a little bit of heat, the cell
21 structure is disrupted, and the tobacco shreds
22 actually expand substantially.

23 Q. Do you have in the courtroom with you
24 today examples comparing an equal amount of tobacco
25 before it was popped and after?

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1 A. Yes.

2 Q. Could you -- all right. Would you
3 explain -- explain that to the jury, please?

4 A. Yes, I'd be happy to. The first jar is
5 tobacco before it goes into a cigarette that has not
6 been expanded.

7 In this jar, I've got an equal weight of
8 expanded tobacco before it goes into a blend. So
9 these two jars contain the same weight of tobacco.
10 If you'll notice the expanded tobacco fills a larger
11 volume. Because it fills a larger volume, you can
12 pack a cigarette with less weight of tobacco. And
13 as a result of that have a major reduction in tar
14 and nicotine level.

15 MR. DAVID: May I approach the witness,
16 Your Honor?

17 JUDGE CARLSON: Yes.

18 MR. DAVID: I'd like the record to
19 reflect that these have been marked as DWN 000152A
20 and 000152B, and I'd introduce -- move these into
21 evidence at this time, Your Honor?

22 JUDGE CARLSON: Any objection?

23 MR. MERKEL: No, Your Honor.

24 MR. DAVID: Publish it to the jury, Your
25 Honor.

1802

1 JUDGE CARLSON: Let them be marked and
2 received into evidence. The court reporter needs to
3 mark them first.

4 (DWN 00152A marked for identification and
5 entered into the record.)

6 (DWN-000152B marked for identification
7 and entered into the record.)

8 MR. DAVID: If I could pass those to you.
9 (Jury examining exhibits.)

10 Q. (By Mr. David) Dr. Townsend, did the use
11 of expanded tobacco result in tar reduction?

12 A. A major tar reduction.

13 Q. Why is that?

14 A. Because it allowed us to significantly
15 reduce the weight of burn tobacco, and as a result
16 generate less tar.

17 Q. To what extent does Reynolds use this
18 expanded tobacco in its commercial cigarettes?

19 A. Almost all of our brands -- almost all of
20 our blends contain substantial quantities of
21 expanded tobacco.

22 Q. Do Salem and Doral cigarettes contain
23 expanded tobacco?

24 A. Yes, they do.

25 Q. Is there any limit to the amount of
1803

1 expanded tobacco that could be used in a cigarette?
2 A. Well, technically not. You could make a
3 cigarette out of 100 percent expanded tobacco. We
4 find those are not consumer acceptable. Typically
5 some of the low tar brands will have more than 50
6 percent, however. That's one of the main ways of
7 generating the ultra low tar products, designing the
8 ultra low tar products and the lowest tar products.
9

Q. Incidentally is Salem made in Salem,
10 Salem Light and Salem Ultra Light?

A. Yes, those are the three major styles we
have, all with different tar levels.

Q. And what about Doral?

A. Doral also has different styles with
different tar levels. There's a full flavor or
regular. There's a light. There are ultra lights
as well.

Q. And all employ these general reduction
techniques that we've been referring to so far
today?

A. Yes, different combinations of these --
of these techniques, actually.

Q. I'd like to turn now to the use of the
air dilution technique for general reduction.

First, would you tell me what air dilution is?

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A. First of all, air dilution is pretty
simple.

Q. I'm sorry, go ahead.

A. Yeah. Air dilution is pretty simple.
First of all, it's introducing air into the
cigarette to dilute the smoke so that the smoke is
diluted. And also, consequently, reduce the amount
of tar that's generated, because there's less air
flow through the combustion region of the cigarette,
because you're essentially short-circuiting the
combustion region. So you're generating less, and
you're diluting the smoke with fresh air from the
outside.

Q. Do you have a chart that will help you
explain this process to the jury?

A. Yes, I do.

MR. DAVID: Your Honor, may the witness
step down?

JUDGE CARLSON: Yes.

A. This chart shows the two major mechanisms
or two major ways we introduce air dilution into the
cigarette. The first is through carefully
controlled paper porosity. I've already spoken a
little bit about paper porosity. But this is a
highly porous paper. And the pores in the paper are
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very carefully controlled so that air can easily go
through the paper, go into the cigarette when it's
puffed and dilute the smoke.

The major air dilution method, though, is
filter ventilation, even more so than the paper
porosity, and with filter ventilation, we actually
place perforations in the filter so that when the
cigarette is puffed, a portion of the air in the
mainstream smoke is air from the outside through

10 those holes.

11 Because air comes through the holes and
12 enters the mainstream smoke, there's less air coming
13 through the combustion region. And if there's less
14 air coming through the combustion region, less tar
15 is generated.

16 Q. (By Mr. David) How does the combination
17 of high porosity paper and filter ventilation then
18 result in the general reduction of tar yields?

19 A. These two together, comprising air
20 dilution is one of the major tools, one of the major
21 techniques for reducing tar. And I would say this
22 together with the use of efficient filters and
23 together with expanded tobacco are the three major
24 cigarette design tools for making ultra low and low
25 tar products.

1806

1 MR. DAVID: The would you take your seat.
2 Thank you.

3 Q. (By Mr. David) Dr. Burns has testified
4 that smokers cover the vent holes in the filter.
5 Has Reynolds investigated this?

6 A. Yes, we've investigated that extensively.
7 We've published and presented papers on it as well.
8 What we find is that only -- of all the cigarette --
9 smoked cigarette filters that we have selected and
10 examined, only a few percent have signs of vent
11 blocking or covering the holes.

12 Q. Okay. Is Reynolds utilizing air dilution
13 techniques in their products today?

14 A. Yes.

15 Q. And are air dilution techniques being
16 used in Salem brand and Doral brand cigarettes?

17 A. Yes, they are.

18 Q. Dr. Townsend, I'd like you to illustrate,
19 if you would, for the jury the effect that these
20 general reduction techniques have had on some
21 individual constituents. If we take benzpyrene, did
22 you prepare a chart that would illustrate the effect
23 general reduction techniques had on benzpyrene?

24 A. Yes, I did.

25 MR. DAVID: Your Honor, can the witness

1807

1 step down?

2 JUDGE CARLSON: Yes, sir.

3 Q. (By Mr. David) What does that chart
4 depict, Dr. Townsend?

5 A. This chart shows the benzpyrene, again
6 shortened to BaP, but the benzpyrene level comparing
7 a 1956 Winston cigarette at 52 nanograms per
8 cigarette, that's 52 billionths of a gram, compared
9 with a 1993 Salem. A 1993 Salem cigarette had 12
10 nanograms per cigarette of benzpyrene.

11 Q. And I think you indicated Reynolds makes
12 other cigarettes with even lower levels of
13 benzpyrene?

14 A. That's correct. If you go to Salem
15 Lights or Salem Ultra Lights, they're much, much
16 lower.

17 Q. Have you prepared a chart, Dr. Townsend,
18 that will help you illustrate for the jury how these
19 techniques have been aggressively incorporated into
20 Reynolds Salem brand cigarettes in order to reduce

21 the tar?

22 A. Yes.

23 Q. Would you put that up, please. What does
24 that chart depict?

25 A. This chart shows the tar level of Salem

1808 1 situating let's made by R. J. Reynolds over the
2 period from 1957 to 1985. And you'll notice in 1957
3 the tar level was 37 milligrams per cigarette, 37
4 milligrams. As a result of a number of changes to
5 the cigarette design, the 1985 Salem was 16
6 milligrams, 16 milligrams in 1985. So that's more
7 than a 55 to 60 percent reduction in tar level for
8 that one particular cigarette.

9 It was accomplished early on through the
10 introduction of a longer and more efficient filter,
11 the introduction of more porous cigarette paper, and
12 improved, still more efficient filter. Then in '63
13 a reduction of circumference. There was a couple of
14 minor changes between here and 1970.

15 In 1970, we began using expanded tobacco
16 in Salem for the first time. In 1980, we introduced
17 an air dilution, filter air dilution for the first
18 time in Salem. And all these techniques together
19 has accomplished somewhere between a 55 to 60
20 percent reduction in tar for Salem.

21 MR. DAVID: I'd like the record to
22 reflect this document has been marked as DWN-000164,
23 and I would move it into evidence at this time, Your
24 Honor.

25 JUDGE CARLSON: Any objection to that

1809

1 offer?

2 MR. MERKEL: Yes, Your Honor. We object
3 to that. That's a chart. That's nothing of an
4 evidentiary nature. They created that. We object
5 to it. It's a demonstrative aid.

6 JUDGE CARLSON: It's been offered and
7 received, requested to be received into evidence.
8 I'll allow it to be marked with the objection to be
9 noted.

10 (Exhibit DWN-000164 marked for
11 identification and entered into evidence.)

12 Q. (By Mr. David) Dr. Townsend, what are
13 line extensions?

14 A. Line extensions are different products
15 carrying the same brand name. For example, Salem
16 has a line extension called Salem Lights and another
17 line extension called Salem Ultra Lights.

18 Q. And have you prepared a chart that will
19 help you explain to the jury the concept of line
20 extensions, and the tar reductions accomplished
21 through those line extensions for Salem cigarettes?

22 A. Yes, I have.

23 Q. Would you put that up, please.

24 Dr. Townsend, what does the chart depict?

25 A. What this shows is a number of different

1810 1 Salem products or Salem line extensions and their
2 level of tar, the tar yield from those cigarettes.
3 So a 1957 Salem was 37 milligrams tar delivery per
4 cigarette. The 19 -- over the period of 1960 to
5 1980, the average tar yield, the average tar yield

6 over that 20-year period was 18 milligrams, so a
7 major reduction compared to '57. But the line
8 extensions for Salem, Salem Lights averaged over
9 that time period 9.7 milligrams, and Salem Ultra
10 Light nearly 5 milligrams of tar per cigarette.

11 MR. DAVID: I'd like the record to
12 reflect this document is marked DWN-000169. I move
13 it into evidence at this time.

14 MR. MERKEL: We again object, Your Honor,
15 it has no independent evidentiary basis, just simply
16 a demonstrative aid. On that basis.

17 JUDGE CARLSON: Objection will be noted.
18 It will be allowed into evidence.

19 MR. DAVID: Thank you, Your Honor.
20 (Exhibit DWN-000169 marked for

21 identification and entered into evidence.)

22 Q. (By Mr. David) All right. Take your
23 seat. Dr. Townsend, were any of these general
24 reduction techniques more important in tar and
25 nicotine reduction than any other?

1811 1 A. Oh, I think some are more important. For
2 example, the use of efficient filters, together with
3 the use of air dilution, together with the use of
4 expanded tobacco are probably the three most
5 important. The others like -- well, reconstituted
6 tobacco was also quite important. But others like
7 faster burning cigarette papers were probably
8 somewhat less important, but taken together, they
9 all work together.

10 Q. All right. And in addition to its
11 long-standing brands like Salem, has Reynolds
12 introduced any lower yield brands, even lower than
13 Salem Lights and Salem Ultra Lights?

14 A. Yes, we have -- we have some cigarettes
15 that are actually very, very low tar, much lower
16 than typical ultra low tar. For example, the Now
17 brand family. We have Now brand family line
18 extensions that are typically one milligram of tar
19 per cigarette. And we even have some versions, some
20 line extensions that are .1 milligrams of tar are so
21 low that you really have a hard time measuring the
22 tar level.

23 Q. And it was the Salem brand and Doral
24 brand cigarettes that Joseph Nunnally smoked; isn't
25 that correct? Do you know?

1812 1 A. I don't know the details of this case.
2 Q. All right. Okay.

3 A. I'm familiar with Salem and Doral.

4 Q. All right. Have you prepared a chart,
5 Dr. Townsend, that shows the effect of the general
6 reduction of tar and nicotine strategy with respect
7 to all cigarettes sold in the United States over the
8 last four years?

9 A. Yes.

10 MR. DAVID: Your Honor, may the witness
11 step down?

12 JUDGE CARLSON: Yes, sir.

13 Q. (By Mr. David) What does that charted
14 depict, Dr. Townsend?

15 A. What this chart shows is what I call the
16 sales-waited average, tar yield and nicotine yield.

17 The sales weighted average is the average -- the tar
18 yield of the average cigarette. That means half the
19 cigarettes sold in the country are higher, half the
20 cigarettes sold in the country are lower. The sales
21 weighted tar yield in 1954 was about 37, 38
22 milligrams per cigarette. And you'll notice as a
23 result of the incorporation of these cigarette
24 design changes, the general reduction techniques,
25 there's been a major decline, major reduction in the

1813
1 sales weighted tar over the -- over the years until
2 1993, we see a sales weighted tar of about 12
3 milligrams.

4 The nicotine yield you notice has
5 paralleled that increase, not exactly, because some
6 of these design techniques effect tar differently
7 than they effect nicotine yield. But pretty much
8 parallel, and the nicotine yield has gone from about
9 2.8 per cigarette down to about .9 milligrams per
10 cigarette. So for both tar and nicotine, we see
11 more than a 60 percent reduction in both the tar and
12 nicotine.

13 Q. So the -- strike that. Did the Surgeon
14 General evaluate the efforts, Dr. Townsend, of these
15 techniques on the chemistry and biology of
16 cigarettes?

17 A. Yes, he did.

18 Q. Do you have a chart that reflects that
19 evaluation?

20 A. Yes, I do. I'll find it.

21 Q. If you could explain the significance of
22 that chart with respect to the design techniques
23 that we've been speaking about.

24 A. Sure. Again, here's a number of design
25 techniques. For example, the use of reconstituted

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1 tobacco, the use of more porous cigarette papers,
2 the use of perforated filter, that's air dilution in
3 the filter, a number of things. And over here, the
4 Surgeon General has indicated in this chart whether
5 or not there was a reduction in carbon monoxide,
6 tar, nicotine, benzpyrene.

7 Or whether there was a change in certain
8 biological measures, one called cilia toxicity,
9 another called carcinogenicity, that's mouse skin
10 painting, and tumor promoters. And you'll notice
11 with these design techniques, for example, the use
12 of reconstitute tobacco sheets by the paper process,
13 that's what we've talked about. You'll notice
14 there's two pluses for tar reduction, that means a
15 major reduction in tar.

16 And he says more than 50 percent in the
17 footnote. A significant reduction with nicotine, a
18 significant reduction with benzpyrene, and two
19 pluses for carcinogenicity. That is a significant
20 and substantial reduction in mouse skin painting
21 tumor genicity, because the double pluses he
22 specifies in the footnote as more than 50 percent
23 reduction.

24 So you'll see all of these pluses for
25 reconstituted tobacco. Also the use of perforated

1815
1 filters. You'll notice this is tar, nicotine,

2 benzpyrene, questionable results on the
3 carcinogenicity of air pollution. He's got a plus
4 minus, that means he's undetermined or questionable
5 to use his words exactly. So yes, the Surgeon
6 General has evaluated these techniques, both from
7 some chemistry, as well as some biology.

8 Q. Take your seat. Do all brands,
9 Dr. Townsend, incorporate the techniques utilized,
10 these techniques utilized to reduce tar to the
11 maximum extent possible?

12 A. No, they don't. Different brands,
13 different brand styles or line extensions are built
14 using different combinations of these, and
15 combinations used at different levels. For example,
16 to make a lights level cigarette, one at 10
17 milligrams per tar, tar per cigarette, we'll use a
18 different air dilution level, a different expanded
19 tobacco the level and a different filter than we
20 would if we were trying to make a 2 milligram Now
21 cigarette, one of the very lowest.

22 There we'll use more dilution, much more
23 expanded filter, more expanded tobacco, slightly
24 more reconstituted tobacco. So we change designs
25 depending on the tar and nicotine yield objective,

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1 and also the taste characteristics we're trying to
2 achieve.

3 Q. We've talked before, and you have
4 testified before about if FTC method of measuring
5 tar in cigarettes. What is the FTC method?

6 A. Well, the FTC method is a prescription
7 for how to measure tar and nicotine and carbon
8 monoxide. It specifies the type of smoking machine
9 that has to be used. It specifies the puffing
10 conditions that that smoking machine uses. It also
11 specifies the collection of the smoke. The use of a
12 Cambridge pad that's extremely efficient, and then
13 how you actually report the data.

14 Q. Now, is was Reynolds required by law to
15 test its products according to the FTC method?

16 A. Yes, we're required to test and report to
17 the government tar, nicotine and carbon monoxide for
18 all brand styles, all products that we produce.

19 Q. When was the FTC method established?

20 A. It was established in 1967.

21 Q. Does the FTC method predict tar and
22 nicotine yields for human smokers?

23 A. No, it doesn't, and it really was never
24 intended to. It's a laboratory measure for
25 comparison, and it was never intended to predict or

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1 in any way estimate what a -- what an actual smoker
2 or a human smoker will get.

3 Q. Was that a secret, Dr. Townsend?

4 A. No, it wasn't a secret at all.

5 Q. The FTC, I assume, knew about that?

6 A. Well, the FTC did know about that. In
7 fact, several things make that very clear. One is
8 the industry, including Reynolds, filed statements
9 with the FTC making it very clear to the FTC that no
10 machine smoking method can duplicate, or replicate
11 or in any way estimate what any smoker actually
12 gets. So there were comments to the FTC to make

13 that very clear.

14 There were also press releases that the
15 FTC had at the time of establishment of the FTC
16 method where the FTC told the public and regulators
17 and everyone else that the -- that the smoking
18 machine -- the smoking method was for comparative
19 the purposes.

20 Q. All right.

21 A. And not representative of human smoking.

22 Q. What is the purpose, then, of testing
23 cigarettes using the FTC method?

24 A. Well, it provides consumers a comparison
25 to make choices in the market. Some smokers prefer

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1 lighter cigarettes, low tar cigarettes. Some
2 smokers prefer higher tar cigarettes and stronger
3 cigarettes. And the tar rating and the categories
4 that go with them, whether it's regular, lights,
5 ultra lights, lowest, give the consumer a clear
6 comparison so that they can make choices.

7 Q. You testified earlier that you had
8 participated in a NCI sponsored conference on the
9 FTC method; is that correct?

10 A. That's right.

11 Q. And when was that?

12 A. That was in December of '94, I think.

13 Q. Was there a recommendation at that
14 conference that the FTC method be changed to more
15 accurately predict the tar and nicotine yields to
16 human smokers?

17 A. The panel did make a recommendation to
18 change the FTC method to more accurate represent how
19 humans smoke.

20 Q. And in the four plus years since this
21 conference began, has the FTC changed its method?

22 A. No, it hasn't.

23 Q. So is Reynolds still required to report
24 the tar and nicotine yields according to that
25 method?

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1 A. We still are required to reported
2 according to the old FTC method that's been in
3 existence since 1967.

4 Q. Dr. Townsend, there has been testimony in
5 this case by Dr. Burns that because people smoke
6 differently the design features that reduce tar and
7 nicotine can be overcome, which result in higher
8 yields than those reflected by the FTC method. Are
9 you familiar with that theory?

10 A. I'm familiar with that theory, certainly.

11 Q. Does the theory have a name?

12 A. Yeah, we call it "compensation." And the
13 concept is that a person who smokes a high tar
14 cigarette and switches to a low tar cigarette will
15 somehow compensate by changing their smoking
16 behavior. How they puff or how they smoke, will
17 compensate so they get the same amount of tar and
18 nicotine as they get in the high tar cigarette.

19 Q. Has Reynolds studied this theory?

20 A. We have studied this theory extensively,
21 yes.

22 Q. And what have you learned?

23 A. I think a number of things. First of

24 all, compensation and smoker switching are extremely
25 difficult experiments to do. I think there's some

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1 conflicting information in some -- in some of the
2 results because it's so difficult to measure actual
3 human behavior with cigarettes.

4 The second thing, though, that's clear
5 from comparison of many, many different studies is
6 that smokers who smoke lower tar cigarettes do smoke
7 differently. They do smoke somewhat more intensely,
8 and they do get more than you would expect based
9 simply on the FTC numbers. But it's also clear from
10 the data that smokers, as a group who smoke lower
11 tar cigarettes, still get less. They just don't get
12 as less -- as big a reduction in tar as you would
13 expect based on any laboratory machine method.

14 Q. All right.

15 A. So they still get less.

16 Q. And has the subject of compensation been
17 studied by people or entities outside of the --
18 Reynolds?

19 A. Oh, it has, by quite a few scientists
20 outside of Reynolds. Not only our competitors
21 within the industry, but people outside the industry
22 at universities and medical schools.

23 Q. And since when have entities or Reynolds,
24 for example, been studying compensation?

25 A. Well, I, personally, can remember studies
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1 in the late '70s. I think there were probably some
2 smaller studies earlier than that.

3 Q. All right. So for those smokers who
4 might compensate, do they still receive lower tar
5 and nicotine yields as a result of the general
6 reduction techniques that you invented?

7 A. I believe from -- from the -- from all of
8 the data at hand that are directly comparable, it's
9 clear to me that smokers as a group get less. They
10 don't get as big a reduction as you'd expect based
11 on the FTC method, but they still get less as a
12 group.

13 Q. Does the FTC method, nevertheless, still
14 reflect the real difference among products, no
15 matter how people smoke?

16 A. It does, and that's what the FTC test
17 method was actually designed for was to provide a
18 comparison for smokers. And it does give -- provide
19 that comparison so that smokers can make a choice
20 between a lights, an ultra lights or a regular.

21 Q. Okay. Dr. Townsend, you've described a
22 number of cigarette design efforts by Reynolds. To
23 what extent has the government been involved in
24 evaluating different cigarette designs?

25 A. Well, there was an intensive effort by
1822

1 the government, particularly the National Cancer
2 Institute, that began in the mid '60s and carried
3 through toward the late '70s.

4 Q. What was the goal of the National Cancer
5 Institute program?

6 A. The NCI program actually established a
7 so-called working tobacco group of experts from
8 outside and inside the industry who worked together.

9 The overall goal was to identify cigarette designs
10 that would result in a less hazardous cigarette. So
11 the title of this whole program by the NCI was
12 toward a less hazardous cigarette.

13 Q. And who headed up this effort by the NCI?

14 A. The -- the leader, in fact, was an
15 employee of National Cancer Institute, actually a
16 director, his name was Dr. Geo Gori, and Dr. Gori
17 led the tobacco working group effort throughout
18 the -- the 10 or 12 years or so of its existence.

19 Q. And who actually comprised the tobacco
20 working group?

21 A. Tobacco working group was a number of
22 scientists from medical schools and universities,
23 for example, Professor Wynder, Professor Hoffman,
24 Professor Fred Bach. All who had done quite a lot
25 of research on cigarettes, cigarette smoke, biology,

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1 that sort of thing. It also included
2 representatives from different tobacco companies who
3 were experts in the area of smoke chemistry or
4 cigarette design.

5 Q. Was someone from Reynolds a member of the
6 tobacco working group?

7 A. Yes, we had two representatives actually
8 at two different times.

9 Q. And were scientists from other cigarette
10 manufacturers involved as well?

11 A. Yes.

12 Q. And what, specifically, did the NCI
13 tobacco working group program test?

14 A. Well, they tested --

15 JUDGE CARLSON: Just a minute, before we
16 go further, let's go ahead and take a short break.
17 That might be a good place for a break, take about a
18 10 minute break for the jury.

19 (Jury exits courtroom.)

20 (A short break was taken.)

21 (Jury enters courtroom.)

22 JUDGE CARLSON: Okay.

23 Q. (By Mr. David) Dr. Townsend, we were
24 discussing the NCI tobacco working group. What,
25 specifically, did the NCI tobacco working group

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1 program test?

2 A. Well, they tested a number of cigarette
3 design variables or techniques. For example, like
4 the ones we've talked about, the use of expanded
5 tobacco, they would test by itself. They would test
6 the use of reconstituted tobacco, test the use of
7 air dilution. They also tested the use of certain
8 tobacco additives to try to reduce certain
9 compounds. So there were a number of cigarette
10 design variables, including these general reduction
11 techniques.

12 Q. And were the -- did the NCI report on the
13 results of these tests?

14 A. Yes, they had a series of progress
15 reports, I think there were five in total that were
16 quite detail.

17 Q. Can you briefly summarize the results of
18 the test?

19 A. Yes. In general, the -- what the NCI did

20 was they looked at chemistry in the smoke. And they
21 also looked at some biology, including mouse skin
22 painting. And they came to the conclusion that the
23 techniques that were implemented for general
24 reduction, particularly reconstituted tobacco,
25 expanded tobacco, and air dilution, had substantial

1825 reductions in chemistry. And that showed up in
1 substantial reductions in many of the biological
2 assays as well.

3 Q. And what did the results of the NCI
4 program suggest to you, then, as a cigarette
5 designer?

6 A. Well, what that suggests to me as a
7 cigarette designer and a product developer, is that
8 the techniques we've developed, that we have
9 invented and actually implemented in the commercial
10 market have made progress toward reducing the risks
11 of smoking.

12 Q. And who was it, Dr. Townsend, who
13 originated the design ideas that the government
14 evaluated?

15 A. All the design ideas were invented, were
16 developed by the tobacco industry and, in large
17 part, by R. J. Reynolds. We invented many of those
18 techniques, probably more than other companies. But
19 they all came from the within the tobacco industry.
20 Nobody outside the industry at research
21 laboratories, at universities or public health
22 laboratories, invented any of these.

23 Q. All right. Is the NCI effort on going
24 today?

1826 1 A. No, it's not. It was terminated,
2 actually, in the late '70s.

3 Q. And by whom was it terminated?

4 A. It was terminated by Secretary Califano,
5 I believe, at the time. It was really pushing for a
6 smoke free society by the year 2000. So that was a
7 change in government policy, and the quest for safer
8 cigarettes sort of stopped. And the government
9 turned its attention toward a smoke free society.

10 Q. All right. Dr. Townsend, there is an
11 exhibit that's in evidence. It is a 1962,
12 Dr. Rodgman document. I want to ask you some
13 questions about that. You mentioned in prior
14 testimony that the Reynolds had identified more than
15 half of the constituents of cigarette smoke; is that
16 correct?

17 A. That's right.

18 Q. Did Reynolds scientists publish all of
19 their the research?

20 A. No, we don't publish all of our research.
21 Again, this is a very competitive industry. And
22 some of what we do, particularly in the area of
23 cigarette design is competitively sensitive. It's
24 proprietary. So we try to incorporate that into our
25 products. Not necessarily publish it and give it to

1827 1 our competitors. So that we frequently won't
2 publish.

3 Other types of work that we don't publish
4 are when we do experiments that don't really add to

5 scientific understanding. Somebody may have already
6 published it, and we're trying to replicate it. Or
7 it may already be known to the scientific community,
8 and you don't publish -- in science, you don't
9 publish something that's the already known. That's
10 already been presented or published?

11 Q. I'm going to hand you what has been
12 marked as Plaintiff's Exhibit 141.

13 MR. DAVID: May I approach shall Your
14 Honor?

15 JUDGE CARLSON: Yes, sir.

16 A. (Examining.)

17 Q. (By Mr. David) Do you recognize that
18 document, Dr. Townsend?

19 A. Yes, I do.

20 Q. What is it, please?

21 A. It's a draft of an internal R. J.
22 Reynolds research report by Dr. Allen Rodgman.

23 Q. Are you familiar with the document?

24 A. Yes, I am?

25 Q. Would you turn to page 13, please. Do

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1 you see the passage where Dr. Rodgman states that
2 members of his research team have studied cigarette
3 smoke in great detail. And while some of the
4 findings have been published, much data remain
5 unpublished because they were concerned with
6 carcinogenic or cocarcinogenic compounds. Do you
7 see that passage?

8 A. Yes, I do.

9 Q. After you saw this memorandum did you go
10 back and check the listed compounds in the
11 memorandum to see whether they were made known in
12 the scientific literature?

13 A. Yes, I did.

14 Q. What did you determine -- first off, what
15 did you check?

16 A. Well, actually, this -- this statement in
17 here about much data remains unpublished because
18 they are concerned with carcinogenetic or
19 co-carcinogenetic compounds heighten my interest.
20 Because that's contrary to my experience at
21 Reynolds. If there's something that adds to the
22 scientific literature, we publish it. Our
23 scientists are encouraged to publish it.

24 So what I did is I went back to these
25 references that are cited in this report in this

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1 sentence, and I think there's 17 references. Went
2 back to the internal RJR data and reports from the
3 R&D library and went through each one of them to
4 find out what these references were.

5 First of all, there were several
6 different topics. Some of these references dealt
7 with developing new test methods and had
8 nothing to do with identifying new compounds. Some
9 of the references, in fact, were focused on the
10 extraction work that we've already talked about,
11 trying to remove precursors, not in identifying
12 compounds. But of these 17 references, there were
13 several that, in fact, talked about compound
14 identification in cigarette smoke.

15 I went back and compared each one of

16 these with the literature to see if they were
17 present in the scientific literature and, in fact,
18 even Dr. Rodgman referenced, I found -- let me flip
19 back to it if I may -- on page 6, Dr. Rodgman says,
20 "Cigarette smoke contains 14 polycyclic
21 hydrocarbons," and he gives a reference, and three
22 heterocyclic compounds. If you go back and compare
23 these references, and in fact, Rodgman says in a
24 footnote, this author, and he means Davies,
25 reference 27, "This author discusses all of the

1830 1 polycyclic hydrocarbons except cholanthrene."

2 I went back and identified that was the
3 case. The three heterocyclic compounds were already
4 published by an outside researcher named -- I've
5 forgotten his name now. I'll think of it in a
6 second. In any event, all of these compounds that
7 are referred to with the exception of cholanthrene,
8 ugenol, and isougenol were already in the scientific
9 literature.

10 What I also found from the R&D library
11 investigation was that Dr. Rodgman, in fact,
12 presented the existence of cholanthrene as a
13 constituent a few years later at a chemical society
14 meeting. He also presented and published within a
15 year or two the existence of eugenol and isoeugenol.
16 So that information, I believe, was in the
17 scientific literature.

18 MR. DAVID: Your Honor, may I approach
19 the witness.

20 JUDGE CARLSON: Yes, sir.

21 Q. (By Mr. David) Going to hand you,
22 Dr. Townsend what has been marked Defense Exhibit
23 AT-000956 and also AN-000220. With respect to the
24 document AT-000956, do you recognize that document?

25 A. Yes, I do.

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1 Q. What is it, please?

2 A. This is a man you script of Dr. Rodgman's
3 presentation to the American Chemical Society in
4 which he talks about cholanthrene among a number of
5 other things.

6 MR. DAVID: Your Honor, I would move that
7 document into evidence at this time.

8 JUDGE CARLSON: Any objection?

9 MR. MERKEL: I don't believe we have it,
10 Your Honor. We didn't see it.

11 Q. (By Mr. David) Dr. Townsend, why don't
12 you be taking a look at that other exhibit while
13 we're waiting.

14 A. (Examining.)

15 JUDGE CARLSON: Any objection?

16 MR. MERKEL: Your Honor, if we could
17 reserve that until we see whether we've been
18 furnished it before. I don't recognize the
19 document, but I've got a stack here. Let me make
20 sure before I speak that it's not. But I don't have
21 any problem with him being examined on it at any
22 rate.

23 JUDGE CARLSON: All right.

24 MR. DAVID: We're finished with our
25 examination on it, Your Honor. I understand, then,

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1 the Plaintiff reserves the objection to the
2 introduction of the document?

3 JUDGE CARLSON: It can be marked for ID
4 purposes, and I'll pass on it once I get an
5 announcement from counsel.

6 (Exhibit AT-000956 marked for
7 identification.)

8 Q. (By Mr. David) In any event,
9 Dr. Townsend, Exhibit AT-000956, tell me what that
10 exhibit is?

11 A. That's a detailed manuscript of
12 Dr. Rodgman's presentation to the American Chemical
13 Society where he talked about eugenol -- not
14 eugenol. He talked about cholanthrene along with a
15 number of other smoke constituents.

16 Q. Is that the type of document that's kept
17 in the ordinary course of business at Reynolds?

18 A. Yes, it is.

19 Q. Do you rely on that document for your
20 opinions in this case?

21 A. Yes, I do.

22 Q. And what is Exhibit Number AN-000222,
23 what does that depict?

24 A. This is a publication also by
25 Dr. Rodgman. It's published in a scientific

1833 journal, and it talks about the identification of
2 eugenol and isoeugenol in tobacco smoke.

3 Q. Is that the type of document kept in the
4 ordinary course of business at Reynolds?

5 A. Yes.

6 Q. Do you rely on that document for your
7 opinions in this case?

8 A. Yes, I do.

9 MR. DAVID: Your Honor, I move Exhibit
10 AN-000222 into evidence at this time.

11 MR. MERKEL: Your Honor, the same
12 position on that. I'm trying to find what was
13 furnished to us. Again, I have no problem with them
14 being testified to, if we could just reserve an
15 objection for a minute until we could find whether
16 it has been furnished.

17 JUDGE CARLSON: All right, sir. Again,
18 it will be marked for ID.

19 (Exhibit marked for identification.)

20 Q. (By Mr. David) All right. Dr. Townsend
21 you mentioned that Reynolds has developed tobacco
22 heating cigarette. Can you describe the company's
23 efforts in that regard?

24 A. Sure. To develop tobacco heating
25 cigarettes or cigarettes that heat tobacco, not burn

1834 it, has been a massive effort at Reynolds, began in
2 the early '80s. It's been one of the largest
3 research projects and development projects that I've
4 ever seen, inside or outside Reynolds.

5 Q. Was that for Premier?

6 A. It ultimately resulted in the development
7 of Premier, which we test marketed in several
8 locations.

9 Q. When did Reynolds invent and develop
10 Premier? When did it start?

11 A. Well, it was in the early '80s, right

12 around 1981, we had the concept and the objective,
13 the objective of it was major, major simplification
14 in smoke chemistry and major reduction in smoke
15 biology.

16 With that objective, we began work in
17 approximately 1981 with the development phase, and
18 the development carried through most of the '80s.
19 We actually implemented that in test market in
20 the -- in the fall of 1988.

21 Q. Did Reynolds meet its design objectives?

22 A. We did meet the design objectives. We --
23 we saw a major reduction in smoke chemistry, a major
24 reduction in smoke biology. In addition, we also
25 had a major reduction in environmental tobacco smoke

1835 1 with that product.

2 Q. Dr. Townsend, did Reynolds publish any
3 research explaining to the public and the scientific
4 community the features and results of its research
5 on Premier?

6 A. Yes, we have an extensive publication we
7 called Monograph where we pulled all the science
8 together on the Premier product, and we distributed
9 that among the scientific community.

10 Q. Hand you what has been marked as
11 AS-000359. Do you recognize that document,
12 Dr. Townsend?

13 A. Yes, this is the Premier Monograph.

14 MR. DAVID: Your Honor, I'd move for
15 admission into evidence of the Premier Monograph.

16 MR. MERKEL: Your Honor, the only
17 objection would be relevancy. As I understand, the
18 thing was published in 1998, I believe? Is that
19 correct?

20 THE WITNESS: No, it was in the late
21 1980s, approximately 1988.

22 MR. MERKEL: Well, subject to the
23 publication date, if it's after the death of
24 Mr. Nunnally, Your Honor, I don't know what it has
25 to do with the case from a relevancy standpoint.

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1 THE WITNESS: This is copyrighted 1988.

2 MR. MERKEL: No objection, Your Honor.

3 JUDGE CARLSON: I'll permit it to be
4 marked and received into evidence.

5 (AS-000359 marked for identification and
6 entered into evidence.)

7 MR. DAVID: Your Honor, should we go
8 ahead and mark AT-000956 and AN-000320 for
9 identification purposes pending the objections?

10 JUDGE CARLSON: Let's go ahead and do
11 that at this point. Let the court reporter mark
12 them for ID.

13 (AT-000956 and AN-000320 marked for
14 identification.)

15 Q. (By Mr. David) Dr. Townsend, why did
16 Reynolds publish this monograph?

17 A. Because we want the scientific community
18 to understand the objectives we had for this
19 cigarette, to understand all of the details of the
20 scientific experiments that we conducted on it so
21 that they could thoroughly evaluate this and
22 hopefully see this as progress in reducing the risks

23 of smoking.

24 Q. And did Reynolds assemble a peer review
25 committee to review the research in the Monograph

1837 1 prior to its publication?

2 A. We did. We had an outside expert, an
3 expert panel that we brought in, they reviewed the
4 science and essentially confirmed that the
5 conclusions we've drawn about Premier were warranted
6 by the science that we had at hand.

7 Q. All right. Dr. Townsend, have you
8 created an exhibit that will assist you in
9 describing to the jury the components of the Premier
10 cigarette?

11 A. Yes, I have.

12 MR. DAVID: Your Honor, may the witness
13 step down?

14 JUDGE CARLSON: Yes.

15 Q. (By Mr. David) What does that chart
16 depict, Dr. Townsend?

17 A. Well, this is a cut away of the Premier
18 cigarette. There's really two main sections of it,
19 and I'll speak to the left-hand section first.
20 This -- the Premier cigarette first has a carbon
21 heat source or a carbon element that the burns, and
22 it's the carbon that burns, not tobacco. The goal
23 is to simplify the chemistry by not burning tobacco.
24 So this carbon heat source burns when it's lit.
25 There's a glass mat insulator around the outside to

1838 1 keep the -- to keep the outside from getting so hot
2 that it might start a fire or burn your fingers, so
3 there's an insulator mat around the outside.

4 Behind the carbon heat source is an
5 aluminum capsule. This actually doesn't depict it
6 very well, but there's an aluminum capsule that the
7 carbon heat source is fitted into it, and inside
8 that capsule is a substraight. The substraight is
9 alumni beads, alumni beads, and on the surface of
10 the alumni beads is deposited tobacco materials,
11 tobacco extracts. The second -- I'll tell you how
12 this works in just a second.

13 The second half is really a tobacco paper
14 filter, much like the reconstituted tobacco that
15 we've already talked about, together with a very
16 inefficient filter, and that's all wrapped in a
17 tipping paper, and then air diluted.

18 Now, when the cigarette is lit, heat from
19 the burning carbon heats the tobacco -- heats the
20 air that goes in the front. The hot air goes into
21 the aluminum capsule, heats those alumni beads and
22 actually drives off flavors, a lot of glycerin, and
23 glycerin is the primary smoke performer, and it's
24 added there to be a smoke performer, and it's a
25 relatively inert material, drives off tobacco

1839 1 flavors, glycerin and a little bit of nicotine. The
2 smoke then leaves this area and goes through the
3 tobacco paper filter where it picks up more tobacco
4 flavors, through this inefficient filter, and then
5 it exits the mouth end of the cigarette.

6 So what you have is a smoke that contains
7 flavors from the heated tobacco, contains a little

8 bit of nicotine and contains a lot of glycerin which
9 forms the smoke.

10 Q. Do you have a Premier cigarette with you
11 in the courtroom?

12 A. Yes, I do.

13 Q. Could you get that and --

14 A. Yes.

15 Q. -- show it to the jury?

16 THE WITNESS: May I, Your Honor?

17 JUDGE CARLSON: Yes, sir.

18 THE WITNESS: Maybe if we could pass one
19 through the jury, and I'll tear one apart and show
20 it.

21 MR. DAVID: Your Honor, with your
22 permission.

23 JUDGE CARLSON: Yes, sir.

24 THE WITNESS: Okay. If you -- again, if
25 you look at the front end of the Premier cigarette,

1840 1 you'll notice the carbon heat source. Around the
2 outside of that carbon heat source is the glass mat
3 insulator. And I'm going to tear it into the two
4 major sections that we see.

5 The first is the smoke formation section,
6 and I'm going to push out the aluminum cylinder and
7 the heat source, okay. So the carbon heat source is
8 actually fitted into the front edge of this aluminum
9 cylinder. The aluminum cylinder is closed on the
10 back except for two slots. You'll notice that
11 there's tobacco around the outside, and that gets
12 warm, and flavors come off of it as well, but that
13 tobacco the doesn't burn. The only thing that burns
14 is this carbon heat source.

15 Now I'm going to take the aluminum
16 capsule and break it open so you can see the --
17 what's inside, and as these alumini beads with
18 tobacco materials and glycerin absorbed on the
19 outside, it's these alumini beads that get hot and
20 drive off the flavors of nicotine and glycerin.

21 Then here is the tobacco paper filter
22 which provides some additional flavor, when the
23 smoke goes through it, it carries some flavor off,
24 and then there's the inefficient filter, of course.
25 But this is the smoke formation region, and then

1841 1 there's the glass mat that insulates the front of
2 the carbon.

3 Q. Thank you, Dr. Townsend. What was the
4 purpose behind Premier? Was it further tar
5 reduction? Tell the jury.

6 A. Well, in a sense, it's further tar
7 reduction, but we wanted to go beyond any tar
8 reduction that we could do with general reduction
9 techniques. We wanted maximum reduction in all of
10 the constituents that are thought to be problems in
11 smoke.

12 Q. All right. And have you prepared an
13 Exhibit that will assist the jury in understanding
14 the difference between mainstream tar for an
15 ordinary cigarette versus the tar from a Premier?

16 A. Yes, I have.

17 Q. All right. Would you put that up,
18 please?

19 A. And.

20 Q. And would you explain to the jury what
21 that depicts?

22 A. Yes. What this is is six Cambridge
23 filter pads. Remember, I was talking about the
24 smoking method where you have to have a highly
25 efficient filter to capture the smoke. What this is

1842 1 is a Cambridge filter pad taken off a smoking
2 machine where there's a high tar cigarette, 40
3 milligrams per cigarette, and you'll notice the
4 brown staining, that's the tar.

5 A regular cigarette or a full flavor, at
6 20 milligrams, there's heavy staining, but lighter
7 than this. Here's a low tar or a light cigarette at
8 11 milligrams. You'll notice it's moderately
9 stained, less than this. An ultralight cigarette at
10 6 milligrams, there's still considerable staining,
11 and then one of the very low tar cigarettes, the 2
12 milligram, and you see some staining but not so
13 much.

14 So as the tar goes down, the degree of
15 staining goes down. Compare that to Premier at 8
16 milligrams, 8 milligrams tar delivery, 8 milligrams
17 of total smoke delivery -- I'm sorry, total tar
18 delivery, and if this were burning tobacco, the
19 color of that pad should be somewhere between this
20 one and this one. But it's not burning tobacco, so
21 you don't get the combustion products from burning
22 tobacco that create this coloration or
23 discoloration, and in fact, the pad is almost nearly
24 white looking. So no discoloration. And that's one
25 demonstration where the smoke chemistry is really

1843 1 very different.

2 Q. And Reynolds studied the smoke chemistry
3 of the Premier, then, Dr. Townsend?

4 A. We studied the chemistry in extreme
5 detail.

6 Q. And what were the results of the
7 chemistry assessments?

8 A. We saw major reductions in virtually all
9 of the compounds that are thought to be problems and
10 many compounds that are not thought to be problems.

11 Q. Have you prepared a chart that will
12 explain the reduction in the number of mainstream
13 smoke constituents?

14 A. Yes, I have?

15 Q. Would you put that up, please. Would you
16 explain to the jury what the chart depicts,
17 Dr. Townsend?

18 A. Well, what I've got on this chart is a
19 number of compounds that are found in cigarette
20 smoke, and I'm comparing the levels in a Kentucky
21 reference cigarette, this is a standard, tobacco
22 burning cigarette that scientists use because
23 it's -- it's made by the University of Kentucky as a
24 reference, but it's a tobacco burning cigarette, and
25 I'm comparing the level versus Premier. And in the

1844 1 final column, I've got the percent reduction from
2 comparing those two. And you'll notice, if you just
3 first look down the list, there are major reductions

4 in the -- for most of these compounds in the 90 plus
5 percent reduction range.

6 Q. Dr. Townsend, are any of the compounds
7 noted on that chart cilia stats?

8 A. Yes, they are. Acetaldehyde is thought
9 to be a cilia stat. We see about a 93 percent
10 reduction. Nitric oxide is thought to be a cilia
11 stat, at 95 percent reduction. Hydrogencyanide is
12 maybe a cilia stat, it's 99 percent reduction.
13 Acrylum is certainly a cilia stat at 86 percent
14 reduction.

15 Q. And what about phenols, are they listed
16 on the chart?

17 A. There's a couple of phenols. I mean,
18 here's phenol, itself, and we see a 96 percent
19 reduction in phenol.

20 Q. What about benzpyrene?

21 A. Well, here's benzpyrene at 99 percent
22 reduction. There's other polycyclic that are in
23 that category like benzanthracene at 99 percent
24 reduction.

25 Q. All right. You can take a seat. Was the
1845

1 Premier cigarette introduced into test markets?

2 A. Yes, it was.

3 Q. And where was it test marketed?

4 A. We had three locations. One was in
5 Tucson, another in Phoenix and another in St. Louis.

6 Q. And what was the result of the test
7 marketing?

8 A. Well, all three test markets actually
9 failed fairly quickly. Consumers at that point
10 weren't willing to accept the very different taste
11 characteristics.

12 Q. All right. Setting aside the commercial
13 failure, Dr. Townsend, would it have been
14 technically feasible to develop Premier earlier than
15 it was, in fact, developed?

16 A. I don't think it would have been
17 technically feasible at all to develop it earlier,
18 and the main reason is because some of the materials
19 we used hadn't been invented until we started using
20 them.

21 For example, the alumni beads, that
22 particular type of alumni bead was a very new
23 material and was -- was important to the way that
24 particular product worked. Another thing is we had
25 to work with suppliers to develop machinery to

1846
1 assemble this, and in fact, we worked with some
2 companies like Bausch that the tobacco companies had
3 never worked with before to try to develop
4 equipment. I think the technology just really
5 wasn't there.

6 Q. Were new patents awarded?

7 A. Quite a few. On the design, we had more
8 than 40 patents, yeah.

9 Q. Dr. Townsend, you've talked a lot this
10 morning about all the efforts you and your
11 colleagues in R&D department at Reynolds have spent
12 trying to modify cigarettes in order to reduce the
13 risk of smoking, selective reduction, general
14 reduction, Premier. Can you estimate how much money

15 has been spent in these efforts over the course of
16 the last 50 years?

17 A. For all -- all of our efforts to reduce
18 the risks?

19 Q. Yes.

20 A. Well, I think just on Premier alone we
21 spent close to 1 billion dollars in the development,
22 which includes the design, all the testing, all the
23 manufacturing equipment, setting up a production
24 facility. It's hard for me to guess for all of the
25 risk reduction efforts, but I would say it's in the

1847 billions.

1 Q. All right. Dr. Townsend, based on your
2 education, training and experience, do you have an
3 opinion, to a reasonable degree of scientific and
4 professional certainty, as to whether Reynolds has
5 provided consumers with cigarettes or products that
6 address the health claims raised about cigarette
7 smoking over the last 50 years?

8 A. Yes, I have an opinion.

9 Q. What is your opinion?

10 A. I believe that R. J. Reynolds has
11 definitely given consumers products that directly
12 speak to, directly address the risks of smoking and
13 address the smoking and health issues in a general
14 sense, no question about it.

15 Q. And do you have an opinion about the
16 quality of Reynolds' research efforts over the past
17 50 years?

18 A. Yes.

19 Q. And what is that opinion?

20 A. It's been my experience, after being at
21 Reynolds for many years, that the scientists, the
22 research effort at Reynolds is first class. We have
23 top scientists. We do good research. We try to
24 incorporate that and actually turn that research

1848 1 into products in the market, and we've had a lot of
2 successes.

3 I also believe that, from this first rate
4 research and development effort, we've been
5 responsible and reasonable in addressing smoking and
6 health issues and actually making a difference.

7 Q. Do you have an opinion, Dr. Townsend, as
8 to whether the cigarettes manufactured and sold by
9 Reynolds during that period of time conformed to the
10 generally recognized state-of-the-art?

11 A. I believe at any point over this period
12 the cigarettes that we've sold have conformed to the
13 state-of-the-art at that time, yes.

14 Q. All right. And do you have an opinion,
15 Dr. Townsend, on whether anyone other than Reynolds
16 has developed a feasible alternative design for
17 cigarettes that addresses the health claims raised
18 about cigarette smoking during that 50-year period
19 that can be demonstrated to be superior to those
20 developed by -- by Reynolds?

21 A. I believe that no one has developed a
22 superior alternative design for risk reduction that
23 works and that is consumer acceptable. I think no
24 one has developed such a thing outside of R. J.
25 Reynolds and some of our competitors.

1 MR. DAVID: Thank you, Dr. Townsend.
2 That was all I have, Your Honor.

3 JUDGE CARLSON: All right, ladies and
4 gentlemen. This is a good place to stop for lunch.
5 Let's start back at 1:15. I would, again, remind
6 you, please, not to discuss the case, and we'll see
7 you back here at 1:15.

8 (A lunch break was taken.)

9 MR. ULMER: Your Honor, while the jury is
10 out, with respect to Plaintiff's Exhibit 569 for ID,
11 the parties have agreed to substitute a complete
12 version of that for identification purposes only
13 with the Court's permission.

14 JUDGE CARLSON: All right, sir. That
15 would be fine.

16 (Jury enters courtroom.)

17 JUDGE CARLSON: All right. Members of
18 the jury, we're ready to go forward. And once
19 again, since you've had the lunch break, I need to
20 find out if you've had occasion to talk to anyone
21 about the case or has there been any effort on the
22 part of anyone to talk to you about the case, any
23 outside information you may have received on the
24 case? Anything you need to bring to my attention?
25 Okay. I take it there's been no contact or

1850 information received on the case. We'll go forward
2 at this time. Mr. Merkel, cross examination.

3 CROSS EXAMINATION BY MR. MERKEL:

4 Q. Good afternoon, Mr. Townsend.

5 A. Good afternoon.

6 Q. I understood your testimony, your
7 introduction this morning, you've worked some 22
8 years for R. J. Reynolds now which would take you
9 back to about 1977 or 8?

10 A. I started in October, 1977.

11 Q. And Mr. David was asking you some
12 questions right off about your testifying and how
13 often you do it. And do you do other things other
14 than testify and so forth. And one of his questions
15 was if you got paid anything for testifying, I
16 assume, to show that there's no reason for you to be
17 biased one way or another. Are you a stockholder in
18 R. J. Reynolds?

19 A. I have some restricted stock, yes.

20 Q. How many shares do you have?

21 A. I don't know exactly. I would say it's
22 in the neighborhood of maybe 14, 15,000.

23 Q. 14 or 15,000 shares?

24 A. Yes.

25 Q. Do you have any stock options to buy any
1851 more?

2 A. I -- I have some stock options, but there
3 are no new stock option coming up.

4 Q. How many shares can you purchase if you
5 wish to?

6 A. I really don't know exactly how many. I
7 would say it's on the order of maybe 6, 8,000.

8 Q. So somewhere in the neighborhood of
9 25,000 total shares that you control one way or
10 another now?

11 A. Yeah, except I don't have complete
12 control. They are restrict.

13 Q. But any dollar fluctuation in the price
14 of the stock down would cost you \$25,000 for each
15 point decline in the stock?

16 A. Well, that, in a general sense, is
17 probably right.

18 Q. The presentation you gave this morning,
19 how many times have you done that, sir?

20 A. This is actually the 14th trial I've
21 provided some testimony to. The -- the story in my
22 testimony is essentially the same. And deals with
23 cigarette design and cigarette design to reduce the
24 risks to smoking. The details vary considerably.

25 Q. So the reason the boards are somewhat

1852

1 dog-eared and frayed on the corners is you've used
2 these same boards in the same testimony on 14 other
3 occasions?

4 A. Well, that's not exactly correct. I've
5 used many of these boards on other occasions, but
6 there have been other boards and exhibits that I've
7 used that weren't used here.

8 Q. Okay. And when you came to the company
9 in 1978, as you say, I assume you had full access to
10 their library?

11 A. I said I came in 1977.

12 Q. '77, I'm sorry. And you had access to
13 their library then and ever since?

14 A. Absolutely.

15 Q. And as far as any research, studies,
16 tests, things that were done by any of your
17 predecessors, any other scientists there, any other
18 Ph.D. or so forth employed by Reynolds, you had
19 those available if you wanted to access them?

20 A. I've had no restriction on that.

21 Q. And I would assume that when one is in a
22 position like yours, that is trying to improve
23 product or direct research towards product
24 modifications and so forth, it is of interest to
25 know what's been done in the past, and what's been

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1 discovered and what tests have been run; is that
2 right?

3 A. Yes.

4 Q. And it would seem, from some of your
5 testimony, Mr. Townsend, that a lot of what you're
6 doing involves not only what we're going to do to
7 the tube or paper that's got tobacco in that we call
8 a cigarette. But how that product is going to be
9 used by the ultimate consumer?

10 A. I think that's actually not exactly
11 correct, either. The -- the focus on cigarette
12 design for reducing risk, you're absolutely right.
13 What the consumer chooses to do -- how the consumer
14 chooses to smoke that is highly variable. What we
15 measure is how the consumer reacts to that product
16 and, in fact, whether they like it and are willing
17 to buy it or not. So...

18 Q. Well, one of the major factors in whether
19 you have adopted all of these fascinating different
20 projects that you've shown us about are whether they
21 were ultimately accepted by a consumer or not; is

22 that fair?
23 A. I think that's exactly right. I hope I
24 made it clear that consumer acceptance of a product
25 is extremely important for product design and

1854 1 product --

2 Q. So it would also be fair, would it not,
3 Mr. Townsend, to say you study -- R. J. Reynolds has
4 studied for years, and years and years consumer
5 reactions, and why consumers do certain things with
6 regard to products. For instance, why they begin
7 smoking in the first place, why they continue to
8 smoke and things of that nature?

9 A. Well, I think we've -- we've studied
10 smoking behavior extensively. We've studied how
11 people puff on cigarettes. How they puff
12 differently over time. We've certainly studied
13 compensation. We've studied some of the issues
14 related to compensation like vent blocking.

15 We've studied a number of things. We've
16 also studied consumer reaction to a number of
17 products. In particular, we go out and talk to
18 consumers about their reaction to different
19 products, why they like them, were can they don't
20 like them. So we can learn something from that
21 hopefully to be as successful as possible.

22 Q. And you've studied why people undertake
23 smoking in the first place, correct?

24 A. I'm not aware of any direct research that
25 the deals specifically with why people start

1855 1 smoking. I know there's research been conducted
2 outside the industry that speaks to that, and I've
3 read little bits and pieces of that.

4 Q. Are you familiar with a study that
5 Mr. Teague did there that analyzed new brands that
6 could be brought out, and why people might be
7 expected to undertake those brands and use them?

8 A. I'm aware of a number of documents that
9 Dr. the Teague wrote over the years. If you have
10 one in mind, I'll be glad to speak to it.

11 Q. Okay, sir. Now, would you agree with me,
12 sir, that your company has accepted as one of its
13 responsibilities an interest in people's health as a
14 basic responsibility paramount to every other
15 consideration in your business?

16 A. Well, I think --

17 MR. DAVID: Object, Your Honor. I
18 believe it's -- that it's a direct reference to a
19 document that's been excluded here.

20 JUDGE CARLSON: Based on the question,
21 I'll overrule the objection.

22 A. I'm sorry. Could you ask that question
23 again?

24 Q. (By Mr. Merkel) Yes, sir, be glad to.
25 Has R. J. Reynolds, sir, accepted an interest in

1856 1 people's health as a basic responsibility paramount
2 to every other consideration in your business?

3 A. Well, I hope my testimony is very clear
4 from this morning, that we accepted as our
5 responsibility to address the smoking and health
6 issues. My job has been through cigarette design,

7 of course. But address the smoking and health
8 issues and try to reduce the risk to smoking as
9 much as possible. That is our responsibility.

10 Q. Have you publicly accepted, as a company,
11 an interest in people's health as a basic
12 responsibility paramount to every other
13 consideration in your business --

14 A. I don't know.

15 Q. -- since 1954, has the company gone on
16 record as accepting that responsibility?

17 A. I don't know all the details of public
18 announcements and everything, but I'll tell you in
19 my opinion it's what we do that counts, not what we
20 say we do. And from my experience there's been --
21 I've devoted most of my career to trying to reduce
22 the risk to smoking. And we've only talked about a
23 few of the approaches that we've taken this morning.

24 Q. Do you or not as a company, Mr. Townsend,
25 accept the responsibility of the public's health as

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1 one of your primary responsibilities as a company?

2 A. I think my view is our company clearly
3 accepts that cigarette smoking is risky, and that it
4 is our job to minimize those risks as much as
5 physically possible. And that's what we've been
6 doing. And we've also made that very clear, not
7 only within the scientific community, but in other
8 forums as well. So we've made that acknowledgment,
9 that yes, that's what we've been doing, and again I
10 think actions speak louder than words.

11 Q. And you have made that pledge to the
12 public, as late as 1954, have you not, Mr. Townsend,
13 your company?

14 A. I think you must be referring to a
15 particular document.

16 Q. Yes, sir, I am, and I think you know what
17 it is as well. And has the company made that public
18 pledge that that is one of their primary
19 responsibilities is the health of the consumer?

20 MR. DAVID: Your Honor, I object to the
21 question. It's clear where Mr. Merkel is going
22 is -- is related to an issue that's been excluded
23 from this case.

24 MR. MERKEL: And Your Honor, the witness
25 has been testifying for three-and-a-half hours this

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1 morning about what they've done and how they've done
2 it. And that door has been opened to whatever they
3 had said or done in the past now.

4 MR. DAVID: That door is not open at all
5 by what Mr. Townsend did on direct this morning.
6 It's clear that this is excluded. It's been
7 excluded from this case. There is no question that
8 it's excluded, Your Honor.

9 JUDGE CARLSON: As to that particular
10 question, I sustain the objection.

11 Q. (By Mr. Merkel) To this day,
12 Mr. Townsend, has R. J. Reynolds ever publicly
13 acknowledged that cigarette smoking causes cancer?

14 A. I think there have been quite a few
15 statements about the risks of smoking, even Bowman
16 Gray, one of our CEO's in 1964 said he believed that
17 cigarette smoking may be injurious to health in

18 1964. I think there have been quite a few
19 statements.

20 Q. Mr. Townsend, I guess I'm not making my
21 questions clear. I didn't ask you about risks. I
22 said has R. J. Reynolds, to this day, as I stand
23 here today, ever acknowledged to the American people
24 that smoking causes cancer?

25 A. We've made it very clear that cigarette

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1 smoking is a substantial risk, and that cigarette
2 smoking may cause cancer, particularly for some
3 individuals.

4 Q. Did you give testimony in the state of
5 Minnesota case, Mr. Townsend?

6 A. Yes, I did.

7 Q. Were you asked a question, "That wasn't
8 my question, sir. When has Reynolds stated that
9 smoking causes disease?" Your answer, "Reynolds has
10 never stated that smoking causes disease." Was that
11 your testimony under oath in Minnesota, sir?

12 A. Yes, Reynolds --

13 Q. And to this day --

14 A. Reynolds has never stated that smoking
15 definitively causes disease. They make it very
16 clear what the science is. I think the individuals
17 within the company have vastly different opinions.
18 Some believe -- some people that I work with believe
19 very firmly that cigarette smoking causes lung
20 cancer as well as other diseases.

21 We have an extensive biological research
22 program. There are other people who believe that it
23 is a serious, serious risk, and that people who
24 smoke run serious risks of developing lung cancer as
25 well as other diseases. But they're not convinced

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1 that cigarette smoking, by itself, in the absence of
2 any other factors like genetics, genetic factors or
3 other risks, they're not convinced that cigarette
4 smoking by itself causes cancer, necessarily.

5 All the laboratory information, however,
6 is consistent, is consistent with cigarette smoking
7 causing lung cancer. But there's missing pieces of
8 scientific information to definitively save that
9 cigarette smoking, by itself, causes cancer.

10 Q. So I understand what you've just said,
11 Mr. Townsend, you agree that all of the scientific
12 knowledge that all of us know as we sit here today
13 that it causes cancer. But that Reynolds, as a
14 company, as late as last week in Florida still
15 contends there is no scientific proof that it causes
16 cancer, it's just a risk factor; is that right?

17 A. Sir, I think -- I think you're
18 misinterpreting exactly what's said. And that no
19 matter what someone like me, or the CEO of Reynolds
20 or anyone else says, it's frequently interpreted in
21 the press as the tobacco company again denies the
22 connection between cigarette smoking and lung
23 cancer. That's not the case. For two reasons.

24 Number one, we make it very clear that
25 people who smoke run a serious risk of lung cancer,

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1 emphysema, chronic bronchitis, as well -- and
2 cardiovascular diseases and other diseases. We make

3 that very clear, and we believe that. The evidence
4 is unquestionable. The epidemiology is strong.

5 Now, you take that, plus additional
6 laboratory studies, the laboratory studies are
7 pretty consistent with a conclusion that cigarette
8 smoking causes those diseases. What's missing is
9 the mechanism of how it does that. But we're not
10 denying, and I'm certainly, from a personal point of
11 view, not denying that cigarette smoking may cause
12 disease.

13 And I believe that for particular
14 individuals, especially, I don't know whether you've
15 kept up with genetic research these days, but
16 there's major advances going forward in genetic
17 research into chronic diseases, especially cancer.
18 And I think they're on the verge of actually
19 understanding how cancer develops and why cancer
20 develops. And I think there's great progress being
21 made. But there's no denial that it's a serious
22 risk, and it may cause cancer. But please don't
23 turn that into a denial that cigarette causing
24 doesn't -- or that cigarette smoking does not cause
25 cancer, because that's not what I'm saying

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1 personally, and I don't believe that's what R. J.
2 Reynolds is saying.

3 Q. Mr. Townsend, R. J. Reynolds has said,
4 publicly, "We believe the products we make are not
5 injurious to health;" have they not, sir?

6 A. That's referring back to that document,
7 again, from 1954.

8 Q. Just an open-ended question,
9 Mr. Townsend. Has R. J. Reynolds ever told America,
10 "We believe the products we make are not injurious
11 to health?"

12 MR. DAVID: Your Honor, I'm going to
13 object. It's a clear reference to what has been
14 excluded from this case. It just goes right back to
15 where Mr. Merkel started out in the beginning.
16 There's no question it's excluded. There's no
17 question what this is related to has been dismissed
18 from this case.

19 MR. MERKEL: Your Honor, he just told
20 this jury we have never said it's not injurious,
21 we've always said it was a risk. That came out of
22 his mouth two seconds ago.

23 JUDGE CARLSON: He can answer that
24 question.

25 A. Frankly I think that's a

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1 mischaracterization of what I said, but I will
2 answer your question.

3 Q. (By Mr. Merkel) Thank you, sir.

4 A. The tobacco companies in 1954 made the
5 statement you referred to. They said at that point,
6 and remember, it was 1954, at a point when many
7 people were questioning the link between cigarette
8 smoking and cancer. And that statement was made by
9 a collection of the tobacco companies.

10 Q. Including R. J. Reynolds?

11 A. R. J. Reynolds was a part of that.

12 Q. And for the next 10 years, R. J. Reynolds
13 consistently, in everything it said for public

14 consumption, contended that there was no proof that
15 cigarette smoking caused cancer; did it not, sir, no
16 scientific proof?

17 MR. DAVID: I'm going to object. This is
18 not an issue in this case. It is so clear it's not
19 an issue in this case.

20 JUDGE CARLSON: I'm going to sustain the
21 objection. He answered the previous question, I
22 think it cleared up his earlier response.

23 MR. MERKEL: Your Honor, may we approach
24 a moment?

25 (Off-the-record discussion at bench.)

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1 JUDGE CARLSON: The record will be made
2 at the appropriate time if the lawyers want, but
3 I'll sustain the objection.

4 Q. (By Mr. Merkel) Now, Mr. Townsend, as
5 far as the -- all the boards there, the -- both
6 technological changes and projects that underwent
7 over the last 40 years or 46 years or so, to sort of
8 bottom line it, you still, as you sit here today,
9 can't say that any of those have reduced the risk of
10 lung cancer, can you, sir?

11 A. Oh, I say they do. And they have reduced
12 the risk of lung cancer, yes.

13 Q. Well, do you remember giving testimony in
14 a case in Duval County, Florida, "Gene Conner versus
15 R. J. Reynolds," sir?

16 A. Yes.

17 Q. Ask you if you gave this testimony there.
18 Question: "Was the 1954 Winston filter cigarette
19 supposed to be safer to smoke than the nonfiltered?"
20 Answer: "We don't know whether it's safer. All we
21 know it's got lower levels of tar and nicotine." Do
22 you recall giving that testimony?

23 A. Yes, and there's a very clear distinction
24 here if you'd like to know the real answer.

25 Q. Whatever, Mr. Townsend.

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1 A. You can't prove -- there's no way to
2 prove, definitively, that one cigarette is safer
3 than another. If you take a high tar cigarette and
4 a low tar cigarette, or even if you take a high tar
5 cigarette and compare it to a Premier, a tobacco
6 heating cigarette, you can't definitively prove that
7 they're different, that one's safer than another.
8 You can, however, gather enough biological
9 information and enough chemical information to put
10 together into a package and make some judgment on
11 whether it should be or not.

12 Then the ultimate test or one test is
13 actually epidemiology. If there's sufficient
14 epidemiology studies, then you can -- then you can
15 assert that there's been a reduction in risk. But
16 going from a reduction in risk to one cigarette
17 being safer versus another, I'm not sure that you
18 can prove that one's safer than another, prove it.

19 Q. And, in fact, even with all the
20 epidemiological studies and the animal studies, your
21 company and the tobacco industry have contended that
22 it hasn't scientifically been proven that cigarettes
23 cause cancer, correct?

24 MR. DAVID: Your Honor, I'm going to

25 object to any question that includes the tobacco
1866 industry in it. This is a case as to Reynolds only.
1 JUDGE CARLSON: The question will be
2 rephrased.
3 Q. (By Mr. Merkel) Is that been what your
4 company has said consistently, that it's not been
5 scientifically proven, Mr. Townsend?
6 A. I don't think it's been said consistently
7 at all.
8 Q. You're still saying it here today, aren't
9 you?
10 A. I've made my point very clear. I've made
11 my personal opinion very clear, and I think I've
12 reflected what many people in the company believe.
13 And I've already made it clear that there's a wide
14 range of opinions within my company.
15 Q. But the opinion coming from R. J.
16 Reynolds that has ever been disseminated in
17 Congress, or in a court case or anywhere else has
18 always been it has not been scientifically proven,
19 hasn't it?
20 A. No, that's not true at all. Have you
21 checked our web site?
22 Q. No, sir.
23 A. Have you really listened to the testimony
24 or read the testimony of, for example, our CEO --
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1 Q. Yes, sir, I think I have.
2 A. -- Miami, last week, a few weeks ago?
3 Q. Yes, sir, I sure did.
4 A. I don't think --
5 Q. And he said again that it had not been
6 proven the cause of cancer, did he not, sir?
7 A. And you take that out of context, and
8 you're trying to paint a picture that's not true.
9 I've made it clear what the opinions are. And we're
10 not dodging the risks of smoking. There's no
11 question about it. In fact, we turn it into action
12 to try to do something about it.
13 Q. And the bottom line is that even with
14 epidemiological studies and even with animal
15 studies, your company has contended that's not
16 scientific proof of causation, correct?
17 A. Oh, there's no question in my mind, not
18 being an epidemiologist, there's no question in my
19 mind that epidemiology is not sufficient proof for
20 causation and is --
21 Q. And --
22 A. I think one needs -- one needs to have
23 epidemiology which essentially says hey, this is a
24 major risk. And it's saying that. And then animal
25 studies and then mechanism to definitively
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1 scientifically prove it. But don't misunderstand
2 me. I'm not saying that cigarette smoking is not a
3 risk, not a threat of lung cancer. It is. It is.
4 And I've stated my opinion several times today, and
5 so please don't mischaracterize me.
6 Q. And as far as whether or not low tar
7 products reduce that risk, you never conducted an
8 epidemiological study to see that, have you, sir,
9 R. J. Reynolds?

10 A. R. J. Reynolds doesn't conduct
11 epidemiology. We're not experts in the field. But
12 Tank and Wall conducted such a study in England over
13 nearly a 20-year period with 56,000 men in England,
14 and they concluded that low tar cigarettes
15 substantially reduced the risk of lung cancer. And
16 that's 1995 in the British Medical Journal.

17 Q. 1995?

18 A. 1995.

19 Q. So that would make that study start, I
20 guess, in 1975?

21 A. Thereabouts.

22 Q. And when did the industry or when did
23 R. J. Reynolds begin marketing for the first time a
24 brand which it advanced to the public as being a
25 lower tar, safer cigarette impliedly?

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1 MR. DAVID: I'm going to object to the
2 form of the question. It's inappropriate.

3 JUDGE CARLSON: I'll overrule the
4 objection. You can answer the question.

5 A. From my chart that I showed this morning,
6 you saw the tar levels start dropping down in 1954.
7 It was a major reduction beginning in that period.

8 Q. (By Mr. Merkel) And I believe that
9 you've testified, have you not, Mr. Townsend, there
10 were two reasons that that Winston product was
11 brought to market at that time. And one of them was
12 to address the health concerns of the scientific
13 community, the other to address the health concerns
14 of the consumer; is that right?

15 A. Well, it's taken out of context, but
16 those are two important reasons that we marketed a
17 filter cigarette.

18 Q. And you implied it by marketing that to
19 the buying public to the consumers, that that was a
20 safer cigarette than the ones that Wynder's mouse
21 study had shown caused cancer, did you not, sir?

22 MR. DAVID: Objection, Your Honor, it's
23 irrelevant to the issues that remain in this case.

24 JUDGE CARLSON: Again, based on direct
25 testimony, I'll overrule the objection.

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1 A. Ask it again?

2 Q. (By Mr. Merkel) When you marketed the
3 1954 Winston product, you implied to the public who
4 was concerned over Wynder's mouse painting test in
5 1953, that this was a break through, a scientific
6 development that was going to make the product
7 safer, didn't you, sir?

8 A. I'm not sure that we implied that at all.
9 I think the public health community at that time was
10 saying if you're going to continue to smoke,
11 consider smoking lower tar cigarettes which are now
12 becoming available in the market. There were a
13 number of "Reader's Digest" articles, for example,
14 that spoke to that.

15 Q. Well, if you offered it to the public to
16 a lay their fears and concerns brought on by the
17 Wynder studies, it was with the intention that this
18 is a better alternative, was it not, Mr. Townsend?

19 A. That's absolutely not correct. What
20 we -- what we're doing in introducing the Winston

21 with the filter, and then reducing the tar level and
22 nicotine level is responding to the fact that
23 cigarette smoking is a risk. Responding to the
24 smoking and health issue. And you're trying to turn
25 it around and make it sound like there's some --

1871 1 some plot to -- to provide misinformation to the
2 smokers, and I don't see that.

3 Q. Well, when you marketed that product at
4 that time, sir, neither you nor anyone else -- and
5 when I say "you," Mr. Townsend, I'm talk being R. J.
6 Reynolds. I know you weren't there then. Either
7 R. J. Reynolds or anyone else had done any kind of
8 tests, epidemiological, animal or otherwise to see
9 if the filtered cigarette was any improvement from a
10 lung cancer risk standpoint, had they?

11 A. Well, they had just come out. You can't
12 have instant epidemiology. As you pointed out, it
13 takes year to conduct an epidemiology test. The
14 first epidemiology, of course, CPS1, CPS2. CPS1
15 comparing filters and nonfilters. In fact,
16 concluded, those epidemiologists, concluded that
17 there was a significant reduction in lung cancer
18 risk comparing filtered cigarettes versus
19 nonfiltered cigarettes. And if you recall the
20 Surgeon General in 1981 reviewed the tar reduction
21 program and concluded there had been a significant
22 decrease in lung cancer with the reduction in tar.

23 Q. And as far as the reduction in tar,
24 you've told us, I believe, Mr. Townsend, that you
25 could take all of the tar and nicotine out with an

1872 1 advanced filtration system of some sort; is that
2 basically correct?

3 A. It's technically possible, but it's not a
4 consumer acceptable product.

5 Q. Well, you used that term I think seven
6 different times if I counted correctly this morning,
7 Mr. Townsend, it wasn't consumer acceptable. What
8 governs what's acceptable to the public?

9 A. They smoke it and like it enough to buy
10 it.

11 Q. Well, if there are choices out there for
12 a person to make a choice, Mr. Townsend, do they
13 have to know what the results or the respective
14 results of their choice will be?

15 A. I'm not sure I fully understand your
16 question.

17 Q. Well, if somebody's going to choose
18 between a low tar cigarette that doesn't taste quite
19 like this high tar one that they've been smoking for
20 15 or 20 years, do they need to know what the
21 advantages of this one are, the low tar one?

22 A. Well, you know, that's part of why we
23 developed the Federal Trade Commission smoking
24 protocol and the government adopted that. Was so
25 that consumers could be aware of the different tar

1873 1 levels in the marketplace, and they could make those
2 conscious choices. Whether to smoke a low tar
3 cigarette and together with the taste tradeoff, or
4 smoke the higher tar cigarette that tastes better.

5 Q. Tell me where a consumer can find out

6 what the degree of his cancer risk is reduced by if
7 he goes to an ultra light tar cigarette,
8 Mr. Townsend? Even today, where can I find that?

9 A. Well, again, I would refer you to the '81
10 Surgeon General's report, the Surgeon General spoke
11 to the reduction in risk of low tar cigarettes again
12 in '89. There was the CPS1 study, CPS2 study,
13 epidemiology studies. There's also the Tang and
14 Wynder -- I mean the Tang and Wall article in 1995.

15 There have been countless articles
16 written about epidemiology and cigarette smoking. I
17 don't think that the average smoker like myself --
18 and I'm certainly not an epidemiologist. I happen
19 to be a chemist. I don't understand epidemiology
20 sufficiently to go out and analyze large data sets.
21 But I'm telling you the information is out there.
22 It's led me to the conclusion that the lower tar
23 cigarettes probably are -- probably are reduced
24 risk.

25 Q. Mr. Townsend, Joe Nunnally was

1874 1 eight-years old when he began to smoke. And had
2 developed a full habit by the time he was 15 or
3 16-years-old. Was anything ever out there to tell
4 him at that age, with that experience, that level of
5 intellect and training what going to a lower tar
6 product might or might not mean with respect to
7 getting lung cancer? Has that ever been available
8 to somebody who wanted to make the choice of what to
9 smoke or whether to smoke at all?

10 A. I think there has been an awful lot of
11 public health community information about low tar.
12 I don't know whether you remember it, but I do.
13 Going back many years, TV commercials, you really
14 should stop smoking. If you can't stop smoking,
15 choose a low tar cigarette. If you don't want to do
16 that, put your cigarette out halfway down.

17 And I remember the -- I remember the
18 video clip of somebody putting out a cigarette
19 that's only half -- half burned. The public health
20 community has carried that message very clearly for
21 many, many years. And I think smokers, and it's my
22 opinion from interviewing smokers in focus groups
23 and elsewhere, that smokers believe that lower tar
24 cigarettes ought to be better for them. I think
25 that's being reinforced by the Surgeon General.

1875 1 It's being reinforced by public health messages, and
2 I think overall smokers who smoke lower tar
3 cigarettes probably run less risk of cancer.

4 Q. Do you think, again, Mr. Townsend, that
5 any of this public health information that's in
6 these scientific journals tells a smoker who is on
7 the spot in the corner store. Going to make the
8 choice between brands, is there anything that tells
9 him how significantly at all his risk is going to be
10 reduced if he goes to your low tar product as
11 compared to the good old Marlboro, or Camel or
12 whatever he smoked, Lucky Strike or whatever it may
13 have been that was back in 1954?

14 A. Sir, I think you missed my point of the
15 answer previous to this.

16 Q. No, sir, you missed my point in my

17 question, Mr. Townsend.

18 A. There's --

19 Q. I'm asking you is there anything out
20 there for the public that your company has ever put
21 out --

22 A. Now, that's a different question than you
23 asked me. You asked me a question what's out there.
24 There's a lot of scientific information out there.
25 And then you come back and ask me but what -- what

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1 do real smokers know? What does the public know?

2 Q. Yes, sir.

3 A. And I come back and tell you there's been
4 tons of public health information out there, and I
5 recounted one example. I can go through 20 more
6 examples, and you probably can, too. So there's all
7 these examples of information to smokers about the
8 risk of smoking and ways to deal with those risks.

9 You stop. If you're worried about the risk of
10 smoking, you stop.

11 If you're not going to stop, you won't
12 stop, then here's some things to do. Trade down to
13 lower tar cigarettes, put it out halfway, and there
14 are other things. And so all this information is
15 available via the public health community. Now
16 you're asking me a slightly different question, what
17 has R. J. Reynolds said to.

18 Q. Yes, sir.

19 A. So you're mixing and matching, and I just
20 would appreciate one question at a time.

21 Q. Yes, sir. What has R. J. Reynolds ever
22 done to advise its consumer that if you would smoke
23 Salem Ultra Light tar, you would have less risk of
24 cancer than if you smoked this other one?

25 A. I'm not aware of any information we've

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1 given to our smokers about the relative risks --
2 direct risks of ultra lights versus lights versus
3 regular. The public health community has done that
4 very well.

5 Q. And in fact, you have never even given
6 your consumer an acknowledgment by your company that
7 smoking cigarettes causes cancer, have you?

8 A. We've already talked about that. We have
9 made it very clear that our company and individuals
10 within our company firmly believe that cigarette
11 smoking is a major risk. It may cause cancer, it
12 especially may cause cancer for some individuals.
13 So please don't characterize this as a denial of the
14 risk to smoking, because you're absolutely wrong.

15 Q. Well, were you playing semantical games,
16 Mr. Townsend?

17 A. This is not semantics. This is serious.

18 Q. Did your company participate for years in
19 creating the appearance that there was an open
20 question about whether cigarette smoking caused
21 cancer?

22 MR. DAVID: Your Honor, I'm going to
23 object to the question. Again, now we're clearly
24 getting into an area that's been dismissed in this
25 case. I'll be happy to discuss it at side bar.

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1 JUDGE CARLSON: Again, on that particular

2 question, I'll overrule the objection.

3 A. I'm sorry, can you ask the question
4 again?

5 (Record read.)

6 A. I'm not sure if all that Reynolds has
7 ever done in the public arena, all that they've ever
8 said, it's been my experience at Reynolds that
9 Reynolds has dealt with the risk of smoking
10 straightforwardly. I'm not aware of a campaign or a
11 project to try to create doubt, frankly. Because
12 from my point of view, the scientists at Reynolds
13 have been responsible, they've been reasonable, and
14 we've been successful.

15 Q. Mr. Townsend, are you telling us under
16 oath that you're not aware of a concerted effort by
17 Reynolds in conjunction with other tobacco companies
18 to maintain and create the appearance of an open
19 question of whether cigarette smoking led to and
20 caused disease?

21 MR. DAVID: Your Honor, I'd like to
22 approach the bench if I may.

23 JUDGE CARLSON: Do you have an objection?

24 MR. DAVID: Yes, I have an objection,
25 Your Honor. It's outside the issues that remain in
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1 this case.

2 JUDGE CARLSON: I sustain the objection.

3 MR. ULMER: Your Honor, there has not
4 been a single pretrial ruling that this honorable
5 Court has made that has been honored, in my view, by
6 the Plaintiff.

7 MR. MERKEL: Excuse me, Mr. Ulmer, let's
8 approach if we're going to make speeches. May we,
9 Your Honor.

10 MR. ULMER: I'm not going to make a
11 speech.

12 JUDGE CARLSON: I don't think anything
13 else needs to be said right now. Let's move on.
14 We've got the witness on the stand. We'll take up
15 anything that needs to be taken up at an appropriate
16 time.

17 Q. (By Mr. Merkel) Do you think that in
18 your heart of hearts, Mr. Townsend, that low tar
19 products are a less risk for cancer?

20 A. Compared to higher tar products?

21 Q. Yes, sir.

22 A. In my heart of hearts yes, I believe
23 that.

24 Q. And do you think Premier was a less risky
25 product than conventional cigarettes with high tar
1880

1 and nicotine levels?

2 A. Absolutely, no question about it.

3 Q. You know, do you not, Mr. Townsend, that
4 it would be better if a person is going to smoke for
5 him to smoke one of those low tar products or
6 Premier, than it would be to smoke a high tar
7 product?

8 A. That's certainly my conclusion.

9 Q. Do you think he would be better equipped
10 to make a choice in that regard if he was told that
11 there is a high likelihood that the high tar product
12 is going to cause lung cancer?

13 A. I think smokers already know that there
14 is a major risk for lung cancer. I don't -- I don't
15 see that. I think communicating clearly what the
16 product differences are, i.e., lower tar or heating
17 tobacco. And, therefore, simplifying the chemistry
18 and reducing the biology. Or even making explicit
19 health claims as we're currently doing in Texas with
20 the successor to the Premier, which is Eclipse.
21 Where we're making very explicit claims that this
22 product reduces the risk of cancer, bronchitis and,
23 possibly, emphysema.

24 Making that kind of information available
25 may make a difference. But I believe every smoker

1881 1 certainly believes and understands that cigarette
2 smoking may cause cancer.

3 Q. And you don't see any difference in a
4 position that it is not proven, scientifically, that
5 it causes cancer, and saying yes, we agree it causes
6 cancer. There's no difference in those two to you?

7 A. Can you ask that again, please?

8 Q. You see no difference in a company who
9 puts a product out saying our product causes cancer
10 on the one hand. And on the other saying there is
11 no scientific evidence that our product causes
12 cancer, but there may be some risk associated with
13 it. You don't think those two impart different
14 messages to a consumer?

15 A. Oh, I think those are two different
16 conclusions, but they're not as different as you
17 would probably think. And the important thing is
18 whether or not you act like it does or not. And in
19 our research and development department, we've
20 behaved as if cigarette smoking does cause cancer.
21 And I've already told you I think there are -- there
22 are people in our research and development
23 department that firmly have concluded that cigarette
24 smoking causes cancer.

25 Q. Have you --

1882 1 A. And there are -- and there are people who
2 believe like I've made my position clear that it may
3 well cause cancer. And, in fact, it's more probable
4 than not, based on all the laboratory studies.

5 Q. And you think that the low tar product
6 cuts that risk considerably, don't you, sir?

7 A. Once again, yes, I believe low tar
8 cigarettes are reduced risk compared to higher tar
9 cigarettes.

10 Q. Don't you think, Mr. Townsend, that a
11 responsible manufacturer, as you said you feel you
12 are should explain to the public that's going to buy
13 your products how much that risk is going to be cut
14 and encourage that consumer to take up this low tar
15 product down here that's much safer?

16 A. I think the public health community is
17 well --

18 Q. No, sir, I didn't ask you about the
19 public health community, Mr. Townsend. I asked you
20 about you as a responsible company.

21 MR. DAVID: Your Honor, I'm going to
22 object and ask the witness be permitted to answer
23 the question.

24 JUDGE CARLSON: First of all, answer yes
25 or no and explain anything he needs to. Go ahead

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1 and ask the question again, Mr. Merkel. And
2 Dr. Townsend, if possible, answer yes or no, and
3 then certainly you'd have the chance to explain
4 fully.

5 THE WITNESS: Yes, sir, Your Honor.
6 Thank you.

7 Q. (By Mr. Merkel) Do you think, sir, that
8 a responsible company, as you've described R. J.
9 Reynolds to be, should explain to its customer or
10 user of its product why it would be to his health
11 advantage to smoke a certain low tar product rather
12 than a higher tar product simply because he might
13 like the taste of it a little better?

14 A. I don't think that that's necessary to be
15 a responsible company. And the reason is because I
16 think the public health community has well informed
17 people. Also the tobacco companies, including R. J.
18 Reynolds Tobacco Company do not conduct
19 epidemiology. That's the kind of experiment that's
20 a massive experiment. We've already talked about
21 that. It's that kind of information that leads to
22 information about the reduction and relative risk
23 like you're talking about. That's already been
24 communicated to -- to smokers.

25 Q. Well, explain to the jury for me if you
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1 would, Mr. Townsend, why you think R. J. Reynolds
2 should abdicate that responsibility to the public
3 health system to put out some vague, scientific
4 document that the public is not going to understand?

5 A. Well, frank --

6 Q. Rather than simply in so many words
7 saying, this cigarette more likely than not probably
8 causes cancer. This one reduces the risk
9 considerably. You should smoke this one if you're
10 interested in your health. What's wrong with doing
11 that?

12 A. In some cases where you can clearly
13 substantiate it with data, there's absolutely
14 nothing wrong. And in fact, that's exactly the way
15 you phrase that sounds very much like our
16 advertisements in Texas with Eclipse.

17 Q. Well, you've been doing this since 1954,
18 and you never did it with anything else. You've had
19 lots of other low product -- low tar products
20 before, Mr. Townsend. Why didn't you do it with
21 them?

22 A. Because Eclipse is very clear, through
23 human studies that we've conducted at leading
24 major -- major medical schools, through animal
25 studies, through chemistry and short-term biology,

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1 it is very clear that Eclipse has a major reduction
2 in a risk of a number of diseases, including lung
3 cancer, bronchitis, and possibly emphysema. Now,
4 the --

5 Q. Would you tell us --

6 A. Let me finish, please. The basis for
7 concluding that low tar is less risky is, in fact,
8 epidemiology and is the public health community and

9 community to conduct that. And they have
10 disseminated the results of that, including the
11 Surgeon General has as well.

12 Q. Any prohibition against you advising your
13 customer which would be better for his health?

14 A. If you look on our web site, you'll find
15 a very clear statement that if you're worried about
16 the risk of smoking, then quit. And if you don't
17 quit, here's an alternative, and it's Eclipse. But
18 make no mistake, if you're worried about the risk of
19 smoking, quit. And I believe, particularly from
20 interviewing many, many smokers, I believe that
21 smokers believe that cigarette smoking causes
22 cancer, no quibbling about it.

23 Q. Mr. Townsend, do you have any reason that
24 if you feel the low tar varieties of cigarette are
25 much safer why you have not substituted them for the

1886 1 more dangerous varieties and simply removed those
2 from the market?

3 A. We offer a range of products for
4 consumers. They're aware of the risks, and they
5 choose in the marketplace. Some smokers prefer low
6 tar cigarettes to reduce the risk. Some people
7 prefer the low tar cigarettes because they're a
8 lighter taste. Frankly more people prefer the
9 lights product. In fact, the lights category of
10 cigarettes is now the largest category in the U.S.
11 It's moved from the higher tar down to the lights.
12 So people are trading down. And they're trading
13 down for a variety of reasons, I believe,
14 personally, that the major reason is the -- is the
15 risk of smoking.

16 Q. And if they had been encouraged 25 years
17 ago or 30 years ago, Mr. Townsend, to trade down to
18 that because it was safer, because the other was
19 known to cause cancer, do you think they would have
20 traded down earlier, and you might have done away
21 completely by now with the more dangerous varieties?

22 MR. DAVID: Object, Your Honor, calls for
23 speculation on the part of the witness. And I don't
24 know what this has to do with cigarette design. In
25 fact, I haven't heard hardly one question about

1887 1 cigarette design yet.

2 JUDGE CARLSON: I'll sustain the
3 objection as to form of the question.

4 Q. (By Mr. Merkel) What's the purpose of
5 cigarette design changes, Mr. Townsend?

6 A. The purpose is to reduce the risk of
7 smoking.

8 Q. Okay.

9 A. To make consumer acceptable products that
10 our consumers will buy.

11 Q. So the bottom line is not whether you
12 have somehow changed the design of a cigarette, but
13 whether you have gotten the public to smoking a
14 safer cigarette that's less likely to kill them;
15 isn't that the bottom line of this whole exercise?

16 A. Well, I think that's overly simplified.
17 My job as a product developer and my staff's jobs
18 are to develop products that are acceptable to
19 smokers, and as much as possible reduce the risk of

20 smoking.

21 Q. And is one of the factors of it being
22 acceptable to a customer him realizing why it would
23 be better for him, and why he might learn to adjust
24 to a change in taste?

25 A. And once again, I'm telling you I believe
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1 that smokers understand that lower tar cigarettes
2 are probably better. That that reduces the risk,
3 probably reduces the risk of smoking, I do.

4 Q. And that's contained somewhere on the
5 pack, I guess.

6 MR. DAVID: Your Honor, now we're getting
7 into preemption.

8 JUDGE CARLSON: Let me just go -- ladies
9 and gentlemen, let me go ahead and send you out, and
10 can we cut that noise out, please. I'll give you a
11 short break, and then we'll get started.

12 (Jury exits courtroom.)

13 JUDGE CARLSON: Now, what's your
14 objection?

15 MR. ULMER: Your Honor, I want to go back
16 to where we were in the record where the Court
17 indicated that we could take this matter up later.
18 I was -- had objected and stated to the Court that
19 there had been a number of in limine rulings made by
20 this honorable Court. That those in limine rulings
21 one by one had been disregarded by the Plaintiff.
22 That there were a number of issues in this case that
23 had been ruled out by summary judgment. And one by
24 one, every one of those issues are being put back
25 into the case.

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1 And the prime example is the one right
2 here, looking at the pack, of looking at the pack.
3 We have summary judgment that, as a matter of law,
4 the warnings were adequate. And we have a ruling as
5 a matter of law, not only that, that type of claim
6 was expressly preempt, what is or is not on the pack
7 is a matter of Congressional mandate.

8 So, Your Honor, not based on one
9 infraction of the in limine rulings and not based on
10 one infraction of the summary judgment rulings, but
11 based on the totality of the total disregard for
12 those rulings by the Plaintiff, we have no choice at
13 this time but to ask for a mistrial.

14 Now, Mr. Merkel made the point perfectly
15 when I stood up to object, he did not want me to
16 object in the presence of the jury because of the
17 effect that what I may say would have on the jury.
18 And I think the Court felt exactly the same way.
19 That is my point precisely. The question is asked,
20 and the Court rules. But the question is still
21 before the jury, and there's just a plowing ahead in
22 every instance. So with all deference, R. J.
23 Reynolds asks for a mistrial at this point in time,
24 Your Honor.

25 JUDGE CARLSON: Mr. Merkel.

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1 MR. MERKEL: Your Honor, there is not a
2 single one of the Court's rulings that has been
3 ignored. This witness has taken the stand for
4 three-and-a-half hours this morning. And

5 laboriously gone over everything they've done to
6 reasonably address the question of health and
7 smoking as he put it. That was the precise question
8 that Mr. David asked him. Yes, we have addressed
9 the question.

10 Now, if nothing else, if everything
11 elsewhere out of this case one way or another, Your
12 Honor, he is on the stand on cross examination. And
13 to the extent that he and his company have done
14 things that are not reasonable to address that
15 problem, that are not consistent with his statement,
16 those are, now I will submit with all deference,
17 fair game for cross examination purposes. They put
18 him up there. They asked him what he's done. How
19 they've addressed the question and every aspect of
20 it. And he's still answering me that no, we've
21 never said that.

22 Well, if I've got a document that says
23 they have done exactly what he has just told this
24 jury in open court they have never said. Whether
25 that document was excluded on my case-in-chief as

1891 1 being a motion in limine saying I couldn't introduce
2 it in chief, I can certainly use it to impeach him
3 when he deliberately misrepresents something, Your
4 Honor, and that's what we're talking about.

5 And we're not trying to get -- repeatedly
6 this morning, he's told the jury we came up with a
7 product, but the public didn't like it. The public
8 didn't accept it. It was safer. It was safer, much
9 safer, but the public didn't like it.

10 Well, the reason the public didn't like
11 it, if Your Honor please, is because the public
12 didn't have any reason to accept a different taste,
13 because they didn't know it was a trade-off for a
14 safer product. Because these people were still
15 telling them all cigarettes are safe. They've not
16 been proven to be a problem. So there was no reason
17 for the public to want to change. And what we're
18 dealing with here, primarily, is what did
19 Mr. Nunnally do based on what he knew or should have
20 known about the situation. Why he didn't quit.

21 They're going to the hammer that, the
22 whole argument is going to be why he should have
23 quit, why he didn't quit. This gentleman must have
24 told me 20 times without a question being on the
25 table that the public knows, the public health

1892 1 services told them. The public knows what's out
2 there. We don't have to tell them what's out there.
3 And to the contrary, Your Honor, when they're saying
4 something opposite of the public health, we can't
5 pretend that's not going on.

6 If he's going to blame it on Mr. Nunnally
7 for ignoring the public health information, then the
8 jury ought to be entitled to know why Mr. Nunnally
9 might ignore that. Why the public at large might
10 ignore what had been said in 1953 and '54 and so
11 forth. So we're not disregarded the Court's ruling.
12 We are trying to cross examine a witness that they
13 put up there to give an impression that they have
14 always been forthcoming and up and aboveboard and
15 done everything a reasonable company should have

16 done.

17 MR. DAVID: May I address the Court, Your
18 Honor?

19 JUDGE CARLSON: Yes, sir.

20 MR. DAVID: Your Honor, I echo my
21 colleague Mr. Ulmer's motion. Mr. Merkel is right
22 in one respect. They haven't ignored the pretrial
23 motions or orders of this Court; they've trampled
24 them, and Mr. Merkel in his argument right now just
25 speaks about what the public knew, what the public

1893 1 didn't know, what we said to the public, what we
2 didn't say to the public. There is no cause of
3 action for fraud on the public in this case or this
4 state. It's gone. Mr. Merkel hates the fact that
5 it is gone, but it is gone.

6 He wants to resurrect it. He wants to
7 try a corporate conduct case if the worst way. And
8 he is doing anything and everything in his power to
9 do so. This is a cigarette design man. I have yet
10 to hear a question about cigarette design coming out
11 of Mr. Merkel. All I hear about is what the public
12 knew, what the public didn't know, what we said,
13 what we didn't say. What we should have said. What
14 somebody at the age of eight ought to know.

15 So it's just all this kind of confusing
16 rhetoric about what -- what boils down to a fraud on
17 the public claim which is gone from this case. Now
18 he's getting into clear preemption areas. There's
19 no question about the fact that it's preempted.

20 Mr. Merkel also knows full well that tobacco
21 companies aren't permitted to make health claims
22 about their products by law, and yet he proceeds
23 down this cause -- this line of questioning in spite
24 of that knowledge.

25 JUDGE CARLSON: Let me find out, also,

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1 let's get specific to the question at hand,
2 Mr. Merkel. You were about to hand Dr. Townsend a
3 cigarette packet. Where are you attempting to go
4 with that?

5 MR. MERKEL: Your Honor, Dr. Townsend has
6 said that Mr. Nunnally, any member of the public,
7 anybody out there, he said should know that it's
8 safer to you to buy low tar and smoke low tar rather
9 than the higher tar variety. This is going to go to
10 Mr. Nunnally's negligence in beginning to smoke.
11 It's going to go to Mr. Nunnally's negligence in
12 continuing to smoke up until the time of his death.
13 He could have chosen a lighter brand. He could have
14 quit entirely. That's going to be the position.

15 All I intend to show with that is there
16 is nothing on there to indicate to him one way or
17 another that he should choose a low brand or any
18 other brand. There's nothing there that relates all
19 of this wonderful technology that they've talked
20 about for three-and-a-half hours that brings it back
21 to the public that we've done this for you, and,
22 therefore, you should use this.

23 MR. DAVID: And that goes to failure to
24 warn.

25 MR. MERKEL: They won't accept -- they

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1 won't accept. If they knew why they should accept,
2 Your Honor, they might accept it. And that is
3 perfectly legitimate as far as the negligence issue
4 in this case. If you're going to make a product out
5 there that's safer, and you're still going to
6 continue to sell the old unsafe one, isn't the
7 public at least entitled to know why you ought to
8 choose this one in we're going to give you a choice.

9 JUDGE CARLSON: Doesn't that go exactly
10 to the failure to warn claims. I don't see how you
11 could avoid it.

12 MR. DAVID: It does.

13 MR. MERKEL: No, sir. It goes to their
14 negligence, Your Honor. It could go to failure to
15 warn, but the fact that it goes to failure to warn
16 doesn't exclude it from anything else. If they are
17 negligent in not bringing that information to cause
18 the public to choose wisely. I mean, he's told us
19 now we've got a whole range of products. We've got
20 high, low, medium, ultra, low tar, and if they'd
21 smoke the low tar, they'd be better. Well, why is
22 that such a secret to keep from the public. We've
23 given you four choices. But choose wisely, or take
24 the high tar one off the market. They can do that.

25 Nothing prevents that, Your Honor. But

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1 they come in here and say well, the public didn't
2 like it. So we withdrew. We no longer sell Lark or
3 whatever that thing was that went off the chart. It
4 was safer. It filtered out more stuff, but because
5 it didn't sell, they pulled it. They don't sell it
6 anymore.

7 But if they had advised why it was there
8 for you -- it's just like Coke and Diet Coke, Your
9 Honor. I hate the taste of Diet Coke, but if I'm
10 trying to lose weight, I'm going to stomach the
11 taste and drink the thing that's got one calorie
12 instead of 80 calories or whatever it is. And this
13 is no different. If they think somebody ought to
14 smoke them, then why keep it a secret? And that's
15 negligence. A reasonable company would not do that.
16 If they've spent all these zillions of dollars that
17 they've testified they've spent on technology, why
18 not try to convince the public to use the
19 technology. Let the public know this better for you
20 and safer for you. Don't spend it and then stick it
21 out there and get one percent of the market with it.
22 And 99 percent of the folks are still smoking the
23 worst stuff. That's the relevancy of it all, Your
24 Honor.

25 JUDGE CARLSON: I'm going to sustain the

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1 objection, because again, even looking at it, even
2 if somehow the door was opened, or even if the
3 issues overlapped or evidence overlapped for claims
4 that are still viable versus claims that are not
5 viable under Rule 403, I think it could be excluded.
6 I don't see any precautionary instruction that would
7 be given to try to reasonably aid the jury. I
8 sustain the objection, because certain claims,
9 failure to warn, fraud, misrepresentation,
10 conspiracy, everything is gone. Let's take about a
11 10 minute break and move forward.

12 MR. ULMER: The mistrial motion is --
13 JUDGE CARLSON: For the record, the
14 motion for mistrial would be denied.
15 (A short break was taken.)
16 (Jury enters courtroom.)
17 JUDGE CARLSON: All right. Mr. Merkel.
18 CONTINUATION OF CROSS EXAMINATION BY MR. MERKEL:
19 Q. Mr. Townsend, before we broke, I think
20 you had told the jury several times that you thought
21 the public health information made clear to
22 everybody what the risks of smoking were. You're
23 familiar, are you not, sir, with a FTC staff report
24 on cigarette advertising in 1981. That stated a
25 substantial portion of the population does not know
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1 how dangerous smoking is, or whether the dangers of
2 smoking apply to them and, therefore, do not have an
3 understanding of the health hazards of smoking?
4 A. No, I don't remember that the document,
5 no.
6 Q. Well, you were asked about it in the
7 Minnesota case, sir. Question: "Now, do you
8 know --"
9 MR. DAVID: I'm going to object again,
10 Your Honor. That leads us right back to the exact
11 line of questioning that we were before. This is
12 out of the case.
13 MR. MERKEL: Your Honor, he's volunteered
14 three times that the public health department
15 information is of perfectly clear to everybody, and
16 this is a study that says that's not so.
17 MR. DAVID: It still relates to issues
18 that are no longer in this case.
19 JUDGE CARLSON: I'm going to sustain the
20 objection.
21 Q. (By Mr. Merkel) Did you ever go out at
22 R. J. Reynolds and investigate what the public knows
23 or thinks about the so-called health question,
24 Mr. Townsend?
25 MR. DAVID: Your Honor, same objection.
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1 JUDGE CARLSON: Let's get focused on the
2 issues in the lawsuit. I'm going to sustain the
3 objection.
4 Q. (By Mr. Merkel) In marketing your
5 products as you told us, Mr. Townsend, that you do
6 or in trying to decide whether to market one, do you
7 try to determine whether smokers would ultimately
8 want a cigarette like that, a low tar product
9 cigarette?
10 A. You mean just a general low tar?
11 Q. Yeah, yeah, lower tar cigarettes. Do you
12 want to find out if the public is interested in that
13 before you go into one of these projects to make
14 one?
15 A. Well, we already know that because there
16 are a variety of smokers that smoke ultra low tar,
17 low tar, and even the lowest, the one and two
18 milligram cigarettes. There is some demand out
19 there for those cigarettes.
20 Q. Have you conducted a focus group study on
21 that very question at R. J. Reynolds?
22 A. On whether they want low tar cigarettes?

23 Q. Yes, sir, whether the public wants low
24 tar cigarettes?

25 A. We've conducted a lot of focus groups
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1 with many, many smokers, and I'm sure we've asked
2 them about low tar.

3 Q. So you know what the public's attitude is
4 about those cigarettes from the focus groups that
5 you've done; is that correct, sir?

6 MR. DAVID: Your Honor, same objection to
7 the question.

8 JUDGE CARLSON: Sustain the objection.

9 Q. (By Mr. Merkel) It's your position,
10 isn't it, sir, that if a person wants to quit
11 smoking, it's a choice that they should make for
12 themselves?

13 A. Oh, I think smoking clearly is a choice.
14 It's a very important choice. People who smoke
15 understand they're taking risks. And if they're
16 unwilling to take those risks, they shouldn't smoke.

17 Q. And you think they understand that; is
18 that correct?

19 A. It's my opinion that smokers understand
20 the risks of smoking.

21 Q. And have you reviewed, while you've been
22 at Reynolds, studies as to whether they understand
23 what the risk is when they are deciding to take it,
24 Mr. Townsend?

25 MR. DAVID: Same objection, Your Honor,

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1 as to the prior three questions. It gets into areas
2 that are no longer a part of this case.

3 JUDGE CARLSON: Ladies and gentlemen, I
4 hate to do this. I'm going to send you out one more
5 time, and maybe we can get focused here on where
6 we're headed from this point forward. I don't
7 believe I'll be but just a few minutes.

8 (Jury exits courtroom.)

9 JUDGE CARLSON: Look, folks, we've been
10 going at it for, what's this, eighth day. And we
11 need to get focused on the issues. And just --
12 Mr. Merkel because the Defendants case-in-chief not
13 everything is opened up as far as impeachment or
14 anything else, we just need to get focused here
15 pretty quick.

16 MR. MERKEL: Your Honor, may I approach
17 and show the Court one of the "Prestage" factors
18 that it is absolutely on point of these last five
19 questions that the objections have been made to.
20 The user's anticipated awareness of the problem is a
21 distinct "Prestage" nature and question. And that's
22 what every one of these questions have been directed
23 at, Your Honor, and I don't know how to prove that
24 factor other than by how I'm doing it.

25 JUDGE CARLSON: What's your response,

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1 Mr. David?

2 MR. DAVID: My response is that the
3 failure to warn and all the failure to warn the
4 public, the failure to warn Joe Nunnally, this
5 conspiracy to commit fraud, the oppression, the
6 concealment, all of that is out of the case. And in
7 terms of the user's anticipated awareness, that's

8 going to relate to Joe Nunnally. Now, it's the
9 user's anticipated awareness, I think it's pretty
10 clear relates to the particular user or the user,
11 not just kind of this global anticipated awareness.

12 But he can't get in the back door what he
13 can't get into the front door, and that's what he's
14 trying to do. And he keeps trying to do it by
15 asking these broad questions about what the public
16 was aware of, what the public knew. Mr. Townsend is
17 a cigarette design expert. He should -- perhaps he
18 should have gotten an expert on public awareness, if
19 that's what he wanted to get into this case. But he
20 can't get it in through a witness's who's a
21 cigarette design expert.

22 Mr. Townsend professes no expertise in
23 public awareness or -- I mean, so -- or in whether
24 we should have warned in other ways or not warned in
25 other ways. But it's clear. Warning is preempted

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1 or it's gone from the case because of the summary
2 judgment, as is all the conspiracy allegations. So
3 that's -- that's my response.

4 MR. MERKEL: Your Honor, if the Court
5 please, where we've been having trouble through this
6 whole thing is the fact that an evidentiary fact may
7 go towards a claim that is not there. Does not in
8 any way keep that same piece of evidence from being
9 relative to -- relevant to something else. And that
10 factor right there, the consumer's anticipated use,
11 that isn't talking about Joe Nunnally. "Prestage"
12 didn't talk about making a combine for one
13 individual, and this case isn't about R. J. Reynolds
14 making cigarettes for Joe Nunnally.

15 The product questions of utility versus
16 risk have to do with what the consumer, the whole
17 body of the public, their anticipated awareness of
18 it, and what they're selling with knowledge of what
19 that is. That's one of the six, seven factors, and
20 every question that I've asked since the recess has
21 gone directly to that. And I assure the Court this
22 witness does know the answer to all these. He's
23 testified to every one of them in Minnesota. I've
24 got his testimony right here.

25 And he's answered these questions before.

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1 Now, what they put him on for doesn't have a thing
2 to do, Your Honor, with what I can cross examine him
3 on. As long as he knows something about it, he
4 works for the company, he's the head of their whole
5 design cigarette strategy, whatever, department.
6 And that's all I'm trying to go into are the flip
7 sides, instead of leaving him up there saying we
8 made all these wonderful little products, and the
9 company didn't -- public didn't like them, so we
10 pulled them.

11 We're saying we're entitled to question
12 him about why the public didn't accept them. Why
13 they junked them, why they took these safer
14 cigarettes off the market and left the more
15 dangerous ones there. And that goes to negligence,
16 and it goes to risk versus utility. There is, in
17 fact, a safer cigarette. They make it, but nobody
18 smokes it.

19 MR. DAVID: Several comments, Your Honor.
20 First of all, what Mr. Townsend was allowed to
21 testify to in Minnesota in a deposition really is
22 irrelevant to what he can testify to here given the
23 facts and issues that are alive in this case.

24 Furthermore, this is not a case about
25 whether Joe Nunnally accepted or didn't accept low

1905 tar cigarettes. There's no indication that the Joe
2 Nunnally ever wanted to smoke a low tar cigarette or
3 didn't want to smoke a low tar cigarette. He was
4 smoking Salems or Salem Lights. So there's no
5 allegation in the case that Joe Nunnally somehow was
6 duped into continuing to smoke a higher tar
7 cigarette because somebody didn't put out
8 information about low tar cigarettes, health claims
9 that they're not permitted to make.

10 JUDGE CARLSON: Again, as to that
11 particular question or line of questioning, I'll
12 sustain the objection, recognizing the risk utility
13 factor set out under "Prestage", but recognizing the
14 claims before the Court and the jury, I'll sustain
15 the objection.

16 (Jury enters courtroom.)

17 JUDGE CARLSON: All right. Mr. Merkel.

18 Q. (By Mr. Merkel) Mr. Townsend, I'm going
19 to hand you back Plaintiff's Exhibit P-679 that you
20 had this morning from Mr. David which is, I believe,
21 a Dr. Rodgman memorandum; is that correct, sir?

22 A. Yes, it's a memorandum from Dr. Rodgman
23 to Kenneth Hoover.

24 Q. And that's when the powerful carcinogen
25 cholanthrene was first discovered; is that correct?

1906 1 A. I don't know the exact date that it was
2 actually discovered, so that's not correct.

3 Q. Well, it was at least discovered by the
4 day he wrote that memorandum, I assume, so it had to
5 be discovered either on that date or earlier than
6 that; is that correct?

7 A. I think that's a fair assumption.

8 Q. And what's the date of that memorandum?

9 A. November, 1959.

10 Q. And he acknowledges in there that that is
11 a powerful carcinogen, does he not, sir?

12 A. Well, he says cholanthrene, a potent
13 carcinogen.

14 Q. Potent, better than powerful, but potent.
15 I'm sorry I misstated it. And it had not been
16 previously known to exist in tobacco smoke at that
17 time, had it, sir?

18 A. I think it had been suspected. I think
19 there hadn't been a positive identification of it.

20 Q. Does he say in the memorandum,
21 Mr. Townsend, that it has not been identified
22 previously?

23 A. That's not exact words he uses. He says
24 it's one of three not yet reported by other
25 investigators.

1907 1 Q. And what does that mean, sir, "not yet
2 reported," what's the effect of that scientifically?
3 A. What do you mean, what's the effect? I

4 don't understand the question.

5 Q. Does that mean that the scientific
6 community is not aware at that point in time that
7 that is a carcinogen that's in tobacco smoke?

8 A. Well, if it's not reported being
9 identified in smoke, it's not been confirmed. I
10 just said a minute ago it had been suspected.
11 There's a whole group of polycyclic aromatic
12 hydrocarbons that had been suspected. And you
13 remember benzpyrene was suspected to be in smoke
14 long before it was identified.

15 Q. Did I ask you anything about benzpyrene,
16 sir?

17 A. I'm just making it clear, because you're
18 asking questions that only get to a piece of the
19 answer.

20 Q. No, sir, I'm asking you about the one
21 potent carcinogen, cholanthrene, had it ever been
22 reported prior to that date in 1959?

23 A. As suspected or as proven?

24 Q. As proven, sir.

25 A. The answer is no.

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1 Q. And Mr. Rodgman, Dr. Rodgman did not
2 report it at that time, did he, sir?

3 A. In 1959, he did not report it.

4 Q. And you showed us another exhibit or
5 Mr. David handed you another exhibit which is 956, I
6 believe, where you say he finally gave it to some
7 kind of meeting. Appeared before -- what was the
8 group that he appeared before and you said disclosed
9 that existence of that carcinogen?

10 A. It was the American Chemical Society,
11 which is the premier organization for chemists in
12 this country and this is --

13 Q. Would you find where in this multi-page
14 documented he presented evidence or information on
15 cholanthrene?

16 A. And this is a manuscript outlining the
17 summary of his presentation to the American Chemical
18 Society, and I will be happy to, and there's table
19 after table of the compounds, including some
20 carcinogens.

21 Q. I'm just asking if you can find any of
22 them that relate to cholanthrene?

23 A. Right here it is.

24 Q. One little chart, correct, in the whole
25 package of 20 or so pages?

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1 A. Along with the rest of them.

2 Q. Yes, sir, and would you hold it up and
3 show the jury where it tells us about cholanthrene
4 on that particular little piece of paper you found?

5 A. Right there. I'm not sure what your
6 point is, but it's reported there along with all the
7 other components.

8 Q. 20 different things on that page, and
9 that one little -- one little glob right here on the
10 left is all that he said about it in that particular
11 paper, correct?

12 A. Well, first of all, that's not a glob.
13 That's a chemical structure. And that's the
14 structure for cholanthrene, and he's reported it in

15 this list of known tobacco smoke constituents.

16 Q. And the date of that document you're
17 holding, please, Doctor?

18 A. It is October, 1969.

19 Q. 1969, and it was found sometime before
20 19 -- September of 1959.

21 A. I think that's fair, yes.

22 Q. 10 years it took to put that into the
23 scientific body of knowledge?

24 A. I think that's -- that's probably
25 correct.

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1 Q. You think that's what a reasonable,
2 responsible company would do with finding a potent
3 carcinogen like that?

4 A. We had reported other potent carcinogens,
5 in fact, more potent than cholanthrene. So I don't
6 understand what your point is. He published it.
7 Would it have made a difference if he had published
8 it a year earlier or two years earlier, I don't
9 think so, because --

10 Q. How about 10 years earlier?

11 A. Long before this, the Surgeon General had
12 already concluded that smoking caused cancer. Would
13 that have changed the picture, I don't think so.

14 Q. Do you think if the Surgeon General had
15 known that carcinogen was also identified in tobacco
16 smoke that the '64 report might have gone further
17 than it did, sir?

18 A. No, I really don't.

19 Q. You really don't.

20 A. Because I'm not a toxicologist, but I
21 have spoken to toxicologists about cholanthrene.
22 And their judgment is that the toxicology of
23 cholanthrene, that cholanthrene is way down the list
24 on the relative carcinogenicity compared to other
25 polycyclic aromatic hydrocarbons like penzanthrene

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1 and benzpyrene.

2 Q. You know one of the criticisms of the
3 1953 Wynder mouse painting studies were there were
4 not enough carcinogens identified to explain the
5 number of tumors, do you not?

6 A. Well, I think that's a misstatement or a
7 mischaracterization of what Wynder actually said.
8 What Wynder said was there's not enough benzpyrene
9 to account for the mouse skin painting. And so
10 there must be other mechanisms going on. And that
11 led to the promotion theory. It also led to further
12 interest in identifying more constituents in smoke.
13 So I think you're only partly right.

14 Q. And if that additional carcinogen had
15 been known to exist in smoke, it would have
16 explained some more of the unexplained tumors,
17 wouldn't it?

18 A. No, I strongly disagree with that. It
19 turns out that cholanthrene is a carcinogen, it's
20 thought to be. It's not a very potent carcinogen
21 according to our toxicologist. I don't think it
22 would have made a bit of difference. Would it have
23 changed the Surgeon General's conclusions, of course
24 not.

25 Q. And as late as 1981, the Surgeon

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1 General's report had concluded, had it not, that
2 there's no safe cigarette and no safe level of
3 consumption?

4 A. I think that sounds -- sounds familiar.
5 I think that's right. It also concluded that low
6 tar cigarettes were reduced risk.

7 Q. And in fact what about they said actually
8 about that is smoking cigarettes with lower yields
9 of tar and nicotine reduces the risk of lung cancer
10 and, to some extent, improves the smoker's chance
11 for longer life, provided there is no compensatory
12 increase in the amount smoked. However, the
13 benefits are minimal in comparison with giving up
14 cigarettes entirely. Do you recall that being in
15 the '81 Surgeon General's report?

16 A. Yes, I recall that, and I also agree with
17 most of it.

18 Q. And you also agree that compensation,
19 depending on the amount of compensation by the
20 smoker, can completely negate the effect of a low
21 tar cigarette, can't you?

22 A. I don't agree with that. I think on
23 the -- and we talked about this earlier this
24 morning. I think compensation does occur. In
25 smokers as a group that smoke lower tar cigarettes

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1 get less. They don't get as much less as you would
2 expect based on the FTC smoking, but they still get
3 less as a group.

4 Q. Well, the seminar that you attended in
5 1994 that I believe you testified several times
6 about this morning with Mr. David, the FTC seminar
7 that considered the FTC method of reporting tar and
8 nicotine?

9 A. The FCI symposium on the FTC method.

10 Q. You participated in that, correct?

11 A. Yes.

12 Q. And that seminar you participated in
13 concluded that claims of the industry that filtered
14 cigarettes were safer was patently false, and the
15 companies knew it, didn't they?

16 A. That was the conclusion of that group.

17 Q. And you participated in that group?

18 A. I participated as an expert, sure.

19 Q. And that was the same time in 1994 that
20 the CEO's of all the tobacco companies, including
21 R. J. Reynolds, denied this was any nicotine
22 addictiveness to cigarettes, did they not?

23 A. If you're -- if you're referring to the
24 Waxman Hearings in 1994, the CEOs were asked is
25 cigarette smoking addictive, and they gave their own

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1 answers.

2 Q. And their answer was no, it is not,
3 correct?

4 A. The CEO from Reynolds said he didn't
5 believe that cigarette smoking, in itself, was
6 addictive.

7 Q. Do you believe it's addictive, sir?

8 A. I think that depends on the definition,
9 doesn't it? I think if your definition of addiction
10 is something pleasurable and it's hard to give up,

11 of course, it's addictive. If your definition is
12 you can't give it up, and there's adverse social
13 consequences, and it includes intoxication, like
14 heroin and cocaine, then the answer is no, it's not
15 addictive. So I think it depends entirely on your
16 definition.

17 Q. From the standpoint of it being an
18 habituating pharmacological substance that is very
19 difficult to quit once you're on it, you don't have
20 any question about that, do you, sir?

21 A. I think cigarette smoking is a strong
22 habit. It's a very strong habit for some people,
23 and some people find it very difficult to quit.
24 Other people quit very easily.

25 Q. Depends on the make up on the person?

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1 A. Some people find it very different.

2 Q. And that same symposium in 1994
3 concluded, did it not, sir, that in the early '50s
4 the major manufacturers widespreadly promoted
5 filtered cigarettes to reassure smokers that
6 regardless of whether there were unhealthy
7 constituents in smoke, filters were a scientific
8 break through? Did the that symposium conclude
9 that, the one you participated in, sir?

10 A. I don't remember that exactly. If you
11 want to show me the report, I'll be glad to verify
12 that for you.

13 Q. Well, I'll show you your testimony. I
14 think that would be easy. Question: "In response
15 to the emerging scientific evidence that cigarette
16 smoking posed a significant health risk to the user,
17 in the early 1950s, the major cigarette
18 manufacturers gang widespread promotion of filtered
19 cigarettes to reassure smokers that regardless of
20 whatever unhealthy constituents were in cigarette
21 smoke, filters were a scientific break through?"
22 And they then listed a bunch of advertisements, and
23 your answer, "I see that passage, and I disagree
24 with a number of things in those passages." The
25 next question, "But at least that's what the doctors

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1 in the FTC reported in 1994, correct?" And you
2 said, "That is in the fore word of the 1994 NCI
3 report."

4 A. Okay.

5 MR. DAVID: Your Honor, I'm going to
6 object to this line of questioning for the same
7 reasons as previously stated to all the other lines
8 of questioning that have been going on. This
9 clearly relates to no issue that is left in this
10 case. It can't possibly relate to a that remains in
11 this case about whether this cigarette is
12 defectively designed. And I move to strike all of
13 Mr. Merkel's comments about it, or his questions and
14 answers.

15 MR. MERKEL: Your Honor, Mr. Nunnally was
16 smoking a Salem filtered cigarette which is exactly
17 what this seminar or symposium that he participated
18 in and that they brought up on three different
19 occasions this morning, this was the finding of that
20 symposium.

21 JUDGE CARLSON: Okay. On that question,

22 I'll overrule the objection. Let's move on.

23 Q. (By Mr. Merkel) Now, the question of
24 compensation, and by that I mean whether smokers
25 beat the filter and smoke it differently than the

1917 1 machine smokes it. That's been around for a long
2 time, hasn't it, sir?

3 A. The concept of compensation has been
4 around a long time, and it's been widely studied by
5 a lot of research labs including R. J. Reynolds.

6 Q. And you did a study on it, did you not,
7 sir, in 19 -- when was it? Early '70s?

8 A. There have been a lot of studies. Are
9 you talking about one conducted at Reynolds?

10 Q. And did R. J. Reynolds make its study
11 available to the Surgeon General for preparation of
12 his 1981 report?

13 A. Which study, specifically, are you
14 talking about?

15 Q. The compensation, any compensation
16 studies you had done prior to the 1981 report being
17 published?

18 A. Prior to 1981?

19 Q. Yes, sir.

20 A. I'm not aware of any.

21 Q. Now, when you took the tar and the
22 nicotine down in these brands, that affected the
23 taste to some extent in some brands, did it not,
24 sir?

25 A. As I said this morning, lower tar

1918 1 cigarettes have less intense taste, a less taste in
2 taste intensity. They do, however, maintain the
3 same general balance or character of the taste.

4 Q. Did you add additives to the tobacco after
5 that point in time to try to restore the taste or
6 make it more palatable to the user.

7 A. Because they were low tar cigarettes?

8 Q. Yes, sir.

9 A. No. Additives have been added to tobacco
10 or cigarettes for a long time before the low tar --
11 the development of low tar cigarettes.

12 Q. Well, did you find it necessary to
13 increase the additives and add different additives
14 to replace the taste by filtration or whatever made
15 them lower tar, Mr. Townsend?

16 A. Well, I think we certainly looked at
17 different additives and different flavors to try to
18 improve the taste of low tar cigarettes. Because
19 frankly, we want to improve the taste of low tar
20 cigarettes, because that will encourage the people
21 to switch.

22 Q. Whatever additives you put into tobacco
23 also when it's burned has the propensity to create
24 more substances in the smoke that may or may not be
25 carcinogenic, is it not?

1919 1 A. What are you saying, that the additives
2 in the products from combustion of the additives may
3 be carcinogenic?

4 Q. Yes, sir.

5 A. That's entirely possible, and that's why
6 we test our additives and evaluated them through

7 pyralis studies. Because we don't want that to
8 happen.

9 Q. Did you ever Congress, require it to make
10 a list of additives that you put in your tobacco
11 available to the scientific community?

12 A. Actually, Bowman Gray, the CEO of
13 Reynolds offered it to Congress in 1964. He offered
14 to provide a full list of our additives and
15 ingredients in 1964 provided that Congress would
16 treat it as a trade secret and not allow our
17 competition to know it. We were happy for the
18 government to know it but not the competition.

19 Q. And you finally made those additives
20 available after Congress passed a law requiring you
21 to do so, correct?

22 A. We provided the Department of HHS in I
23 guess early to mid-1980s. And then in early 1990s,
24 we actually made the list public.

25 Q. Actually, it was October of 1984, when

1920 1 Congress passed that law that required within one
2 year for you to come forward with all your list of
3 additives?

4 A. And we've provided that list of additives
5 annually to HHS ever since. And HHS has never
6 questioned a single one of them to us.

7 Q. The Surgeon General's report of 1981,
8 Mr. Townsend, did it provide or have a provision in
9 it that the overriding objective -- well, let me
10 back up a little further. "In the area of public
11 information and education, much more needs to be
12 done by the government, and by private health and
13 educational agencies. The overriding objective must
14 be to persuade young people not to take up smoking
15 and to encourage present smokers to quit. Smokers
16 of the lower yield cigarettes should be warned not
17 to begin smoking more cigarettes or inhaling more
18 deeply."

19 A. And your question is?

20 Q. Do you recall that recommendation being
21 made by the 1981 Surgeon General's report?

22 A. I don't. I don't really remember. If
23 you have the 1981 report, I'd be glad to look at it.

24 Q. Well, you were asked in the deposition in
25 Minnesota did you read that portion of the Surgeon

1921 1 General's report in 1981, and your answer, "I think
2 in a general sense. I don't recall. I probably
3 did." Have you read that report, sir?

4 A. I've read the part -- I've read most of
5 the '81 report. I've read parts of many of the
6 reports.

7 Q. Now, you were asked by Mr. David another
8 question this morning, I think, sir, that had
9 Reynolds ever put things into its tobacco, added
10 things to it. One of the processes that you went
11 into great detail about, and that is the expanded
12 tobacco, actually did have something added to it,
13 did it not, sir?

14 MR. DAVID: Your Honor, I'm going to
15 object to the form of the question. I didn't say
16 things. I said carcinogens. That was the question.

17 JUDGE CARLSON: The witness can answer

18 based on the question, that will be fine. If not,
19 it can be rephrased.

20 A. I need it rephrased, Your Honor.

21 JUDGE CARLSON: All right.

22 Q. (By Mr. Merkel) Did you add something to
23 the tobacco in order to expand it under the program
24 that you showed the jury all about this morning?

25 A. Well, I think I testified this morning

1922 1 that something was added. It's called an expansion
2 agent. And if you remember, I pointed to carbon
3 dioxide as one expansion agent. That's the process
4 we currently use. The first expansion agent -- the
5 first expansion process that we invented used freon
6 as the expansion agent.

7 Q. And did Dr. Rodgman conclude in studies
8 at the Reynolds' laboratories that freon residue in
9 that expanded tobacco was actually a health problem?

10 A. I don't recall that. I know there were a
11 lot of studies looking at freon residues. And we
12 made sure that the residues were below any problem
13 level before that product was marketed.

14 Q. Well, did he issue a report, "On the
15 basis of the evidence, it is recommended that the
16 use of freon 11 in tobacco products should be phased
17 out as quickly as practicable?" Do you recall that,
18 sir?

19 A. You're taking something out of context.
20 If you'd like me to deal with that, I'll be happy to
21 if you show me the entire article. Because there
22 have been a lot of studies on freon residue. There
23 was one article in particular, an internal RJR
24 article where we were using a process which was a
25 batch process. It was a small scale, and yes, we

1923 1 had residue problems. When we launched into a full
2 scale process and actually developed and refined it
3 you better believe that we made sure that the freon
4 residues were nil.

5 We also examined for decomposition
6 products from freon to make sure that there were no
7 decomposition products remaining in the tobacco. We
8 did extensive studies, and even contract animal
9 studies out with an outside independent laboratory,
10 because we wanted to make sure. If you want me to
11 deal with a sentence taken out of context, you know,
12 I can really deal with it if you'll show me the
13 whole document.

14 Q. And as a result of those studies you just
15 told us about, did Dr. Rodgman conclude that freon
16 11 should not be regarded as an acceptable process
17 residue?

18 A. And I'm saying if you want me to answer
19 that question, I'll be glad to if you'll show me a
20 document.

21 Q. I'll show you your deposition, sir.

22 A. I need a document, sir.

23 Q. I don't have the document, but I can show
24 you what you testified to under oath in Minnesota?

25 A. And the document was shown to me then.

1924

1 Q. "Freon 2 should not be regarded as an
2 acceptable process residue, correct?" Your answer,

3 "That seems to be what the author was saying."

4 THE WITNESS: Your Honor, in that
5 deposition I was given a document, as I recall. I
6 think it's unfair to me.

7 JUDGE CARLSON: First, let me find out,
8 Dr. Townsend, he's asking whether or not you
9 testified to that, yes or no.

10 A. Sure. I stand by my testimony.

11 JUDGE CARLSON: All right.

12 Q. (By Mr. Merkel) Okay, sir. And how long
13 did that freon product continue to be the expansion
14 agent in expanded tobacco? It began about 1970, I
15 think, did it not, sir?

16 A. We introduced it in 1970.

17 Q. And when was it finally taken out?

18 A. It was in the '80s.

19 Q. How about 1993?

20 A. Okay. I would say the late '80s, though,
21 '89. Maybe that's when we started up the CO₂ plant,
22 because that's when I remembered.

23 Q. And at that time it was taken out because
24 you could no longer acquire it because of the O-zone
25 problems connected with it. Rather than because of

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1 the fact that it might be a problem in tobacco, is
2 it not?

3 A. Certainly, freon was becoming unavailable
4 because it is a problem.

5 Q. But for approximately 20 years despite
6 Mr. Rodgman's memorandum about the freon residue, it
7 continued to be used?

8 A. I'm telling you I'm not aware of freon
9 residue problems that were in the final product, in
10 the final factory that we developed. If you're
11 asking me to comment about something in a general
12 sense like this, I really need to see a document.

13 JUDGE CARLSON: Ladies and gentlemen, is
14 it just me? Are any of you warm? It is warm, huh.
15 Check and see if we can get it cooled down.

16 Q. (By Mr. Merkel) We've been talking,
17 Mr. Townsend, about the 1981 Surgeon General's
18 report, sir. And was there a recommendation made in
19 that the report "That research should be done on the
20 distribution, partitioning and penetration of lower
21 tar and nicotine smoke in the lung with
22 consideration of potential changes in smoking
23 patterns by those who smoke lower tar and nicotine.
24 Cigarette smoking machines currently in use and the
25 techniques by which animals inhale cigarette smoke

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1 in research models may not be representative of the
2 human situation, because human smokers are able to
3 take larger, more frequent and higher velocity
4 puffs." Do you recall that --

5 A. That sounds familiar. That may be the
6 '81 Surgeon General's report, but it sounds
7 familiar.

8 Q. And what's that's recognizing is whatever
9 the label is on a pack about the content of tar is
10 not representative of what an individual smoker is
11 going to get by using that product; is that right?

12 A. Well, I think we've already that I had
13 that very clear this morning. Machine smoking is

14 arbitrary. It doesn't represent, never was intended
15 to represent what any individual smoker gets. What
16 a smoker gets depends on how they smoke that
17 cigarette.

18 Q. And nicotine has been identified by
19 Claude Teague, particularly with your company, as
20 being the prime ingredient in cigarettes that cause
21 users to become addicted or to become habituated if
22 you prefer that term; is that right?

23 A. Well, I think that's -- that's an over
24 generalization of a lot of Dr. Teague's writings.
25 It's clear to me in a general sense that Dr. Teague

1927 1 thought that nicotine was the only reason people
2 smoked.

3 Q. And would you agree that the body has no
4 craving for nicotine when we're born?

5 MR. DAVID: Your Honor, I'm going to
6 object to this. I'm not sure that -- this is an
7 expert on cigarette design. I'm not sure if we're
8 trying to turn him now into an expert on medical or
9 pharmacology.

10 JUDGE CARLSON: I'll overrule the
11 objection if he can answer.

12 Q. (By Mr. Merkel) Do you agree with
13 Mr. Teague's conclusions in that regard,
14 Mr. Townsend, that we do not come here having a
15 taste for nicotine, or a craving or a desire for it,
16 that it's a learned experience?

17 A. Oh, I think that's probably fair.

18 Q. And if cigarettes reduced, tremendously,
19 the level of nicotine they contain, if you took one
20 of these low -- low tar, low nicotine things you
21 designed, and you started a new smoker out on that,
22 would that satisfy his craving for nicotine if he
23 had never had the higher dosage before?

24 A. We don't start new smokers out. We don't
25 try to start people smoking. So I think that's --

1928 1 that question doesn't apply.

2 Q. Mr. Townsend, are you implying that you
3 the don't want new people to take up this habit?

4 A. That's right.

5 Q. So as soon as all of us that are now
6 smoking wherever we are die out, then that's the end
7 of it. You don't want to perpetuate the business;
8 is that your testimony?

9 A. Don't -- don't misunderstand this. R. J.
10 Reynolds and I, personally, don't want people to
11 start smoking if they worry about the risks,
12 absolutely not.

13 Q. Well, if they're worried about the risk,
14 and they started out on a Premier or one of these
15 things that has almost no tar and no nicotine in it;
16 they wouldn't miss it, would they, sir?

17 A. Wouldn't miss what?

18 Q. The nicotine that they're used to, that
19 these other people are used to because they've been
20 smoking it for 10, 20, 30 years?

21 A. There's more to smoking than just
22 nicotine. Nicotine is a very important reason why
23 people smoke, but it's not the only reason.

24 Q. Give me another one.

25 A. There are ritual aspects, I think it's a
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1 social -- in many cases, it's a social behavior.
2 There are some positive rewards that come from it
3 like increased attentiveness, stress reduction,
4 that's important for some smokers, not for all
5 smokers. Certainly nicotine is important, and it's
6 very important, but it's not the only reason people
7 smoke.

8 Q. Nicotine is the only pharmacological
9 agent in it that does any of the things you just
10 mentioned, is it not, Mr. Townsend?

11 A. No, that's not true at all.

12 Q. What else relieves stress in there?

13 A. There are some other alkaloids at very,
14 very low levels.

15 Q. Very what?

16 A. Low levels.

17 Q. Low level?

18 A. Yes. I would imagine they may be
19 pharmacologically active.

20 Q. You would imagine?

21 A. Nicotine exerts a mild pharmacology, no
22 question about it. Does help relieve stress, may
23 help improve attentiveness, but it's not the only
24 reason people smoke. If it were the only reason
25 people smoked, why would they accept the risk of

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1 smoking if that was all they're smoking for is
2 nicotine when I can get a patch or I can get
3 nicotine gum. I mean, it would be crazy for me to
4 continue smoking if it were solely 100 percent for
5 nicotine if I could go out and buy a patch or gum.

6 Q. To be in the in crowd, your Partly looks
7 perfectly well? Looks the same, hold it in your
8 finger the same way. Looks just as cool.

9 A. I think you've got the wrong cigarette,
10 sir. It's not Partly, it's Premier.

11 Q. Well, whatever, Premier. It would look
12 just the same to anybody that's watching you do it,
13 wouldn't it?

14 A. I'm not sure I understand your question
15 about the in crowd.

16 Q. My question, sir, you said the public
17 rejected your Premier cigarette, and the reason they
18 did was because of the low nicotine level, was it
19 not?

20 A. No, it was because it had an unusual
21 taste. The nicotine was low, but it wasn't that low
22 compared to other will he nicotine products.

23 Q. Dr. Teague, on behalf of Reynolds,
24 recognized back in the '70s that the factors which
25 induce a pre-smoker, a nonsmoker to become a

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1 habituated smoker are paradoxically the same things
2 that keep a confirmed smoker habituated and
3 satisfied, i.e. nicotine and secondary physical and
4 manipulative gratifications are unknown and largely
5 unexplained to the smoker/nonsmoker. He does not
6 start smoking to attain undefined physiological
7 gratification for release, and certainly does not
8 start to smoke to satisfy a nonexisting craving for
9 nicotine. Do you agree that was Dr. Teague's

10 conclusion?

11 A. It sounds familiar from one of
12 Dr. Teague's documents.

13 Q. And he goes on to say, rather he appears
14 to start for purely psychological reasons to emulate
15 a valid image, to confirm, to experiment, to defy,
16 to be daring, to have something to do with his hands
17 and the like. Do you recall that?

18 A. That's --

19 Q. Also from Dr. Teague's memos?

20 A. That sounds familiar from one of
21 Dr. Teague's memos. And again, Dr. Teague focuses
22 on nicotine as the reason for people starting
23 smoking. I think it's important. I don't think
24 it's the only reason.

25 Q. All of these images as why he's described

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1 the nonsmoker begins to smoke in the first place
2 could be satisfied without nicotine and without tar,
3 couldn't they?

4 A. I think that's possible.

5 Q. Well, to emulate a valued image, he can
6 look like John Wayne if he smokes a Premier, can't
7 he?

8 A. I mean, you're asking me some unusual
9 questions, but I suppose it's possible.

10 Q. He can conform to what his buds are doing
11 by smoking Premier that has no tar and nicotine?

12 MR. DAVID: Your Honor, I object. I
13 think it starts to call for speculation on the part
14 of this witness as to what people might do.

15 JUDGE CARLSON: I sustain as to the form
16 of the question. He can rephrase it.

17 Q. (By Mr. Merkel) All of Dr. Teague's
18 basic reasons that a person undertakes smoking can
19 be supplied by a nontar and nonnicotine cigarette,
20 can it not, sir?

21 MR. DAVID: Same objection, Your Honor.

22 JUDGE CARLSON: I'll overrule that
23 objection.

24 A. For starting smoking?

25 Q. (By Mr. Merkel) Yes, sir. Beginning

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1 smokers.

2 A. Well, begin, I haven't reviewed this the
3 document in a long time. I think you're probably
4 reading it accurately from the document. But you
5 know, again, I think people probably start smoking
6 for a variety of different reasons. It's hard for
7 me to sit here and just generalize to why people
8 smoke. Because I think people smoke for different
9 reasons. People probably start smoking for
10 different reasons. So I don't know.

11 Q. And if they started for all of the
12 reasons Dr. Teague says, smoking the Premier brand
13 that did not have enough nicotine in it to make them
14 addicted, they would have a much easier time
15 discontinuing the habit at some point in the future,
16 wouldn't they?

17 MR. DAVID: Same objection, Your Honor.

18 JUDGE CARLSON: I'll overrule that.

19 A. It depends on why people would start
20 smoking such a product in the first place. You

21 know, if they're doing it for -- to be cool, as you
22 said. It's possible that the product would be
23 entirely acceptable to them without any nicotine or
24 tar. I mean, it's just hard for me to speculate on
25 such a thing.

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1 Q. But the nicotine, when it's added in
2 sufficient levels, causes the habituation, the
3 physical craving that they continue with after the
4 psychological reason for starting has disappeared?

5 A. What are you suggesting, that we add
6 nicotine?

7 Q. No, sir, nicotine is already there unless
8 you take it out. I guess I'm suggesting you could
9 take it out. But you wouldn't sell as many
10 cigarettes, because people wouldn't become addicted.

11 A. I think that's speculation. An I
12 can't -- I can't begin to answer that.

13 Q. You agree that Dr. Teague in his memo
14 says, "If as proposed above nicotine is the sine qua
15 non of smoking and if we meekly accept the
16 allegations of our critics and move toward the
17 reduction or elimination of nicotine from our
18 product, then we shall eventually liquidate our
19 business." Do you recall that in his memo, sir?

20 A. Yes, I do.

21 Q. If we took out all of the tar and the
22 nicotine, we would have a much safer product,
23 wouldn't we, Mr. Townsend?

24 A. If you took out the tar, you'd have a
25 much safer product, certainly. And that's one

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1 direction to take cigarette design. And we've
2 talked about that already, maintaining some moderate
3 nicotine level and reducing the tar level as much as
4 possible.

5 Q. Now, the ultra low tar, low nicotine
6 products that you have out there right now command,
7 what, less than one percent of your total market?

8 A. Of the total ultra low tar, it's probably
9 less than five percent.

10 Q. Well, did you say in Minnesota that it
11 was owe "I would say it's less than about --
12 certainly less than two percent, maybe be less than
13 one-and-a-half percent." Question: "Less than one
14 percent, isn't it?" And you said, "I haven't seen
15 the latest numbers on it."

16 A. If you're talking about the lowest which
17 is the one and two milligrams products, that's less
18 than one percent. If you're talking about the full
19 ultra low tar category which goes up to six, that's
20 less than probably five percent.

21 Q. And you describe nicotine as a mildly
22 pharmacological substance, I believe, is that right?

23 A. Yes, and I did it here today, too.

24 Q. And you've mentioned in direct testimony
25 to Mr. David earlier today a scientist in London by

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1 the name of Russell, correct, sir?

2 A. Sure.

3 Q. And who is he, for the jury's benefit?

4 A. He's a professor at the University of
5 London. He's a psychiatrist, also worked in -- in

6 the area of tobacco and tobacco smoke for a long
7 time and smoking behavior.

8 Q. Let me read you his article from the 1990
9 journal -- British Journal of Addiction,
10 Mr. Townsend, and you were testifying about this
11 also in Minnesota, I believe. "It is generally
12 recognized that smoking causes more preventable
13 illness than any other form of drug addiction.
14 Despite this and unlike the case with other
15 addictions, few services are provided to help people
16 to give it up.

17 Yet nicotine is highly addictive. Its
18 role in the recruitment process, the development of
19 dependents and as a block to smoking cessation are
20 discussed within the context of the typical smoking
21 career. Over 90 percent of teenagers who smoke
22 three to four cigarettes are trapped into a career
23 of regular smoking which typically lasts for 30 to
24 40 years. And only 35 percent of regular smokers
25 succeed in stopping permanently before the late age

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1 of 60, although the large majority want to stop and
2 try to stop." Do you recall that content of
3 Dr. Russell's article on addiction?

4 A. I don't recall that specifically. I'm
5 not doubting that it's in one of his articles, but I
6 don't recall that passage specifically.

7 Q. Well, let me show you again your
8 testimony from the Minnesota trial, sir. And you
9 were reading along with the -- at that time, and
10 after each part, you were asked "correct" and you
11 said that's what it says, that's what it says,
12 that's what it says, that's what it says. You read
13 that right, you read that accurately.

14 A. Well, that's what this transcript shows,
15 and if you want me to deal with the document, bring
16 me the document, and I'll read it for this Court.

17 Q. Well, I guess we can deal with the
18 document just from the standpoint of what I've said.
19 Do you agree, sir, that that's what Dr. Russell
20 wrote in his article on the addictiveness of
21 cigarettes?

22 A. Well, that's a different question. You
23 just asked me if I agreed that's what he wrote. You
24 asked me before if I remember that passage. I don't
25 remember. Do you remember everything you read all

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1 the time?

2 MR. DAVID: Your Honor, I'm going to
3 object to this form of questioning from an article
4 that's not in evidence in this case. It hasn't --
5 it hasn't been authenticated. It hasn't been
6 offered into evidence in this case. I think it's
7 totally inappropriate to read from it. And besides
8 that, it's a 1990 article, which is beyond the
9 time -- well, in any event, that's my argument.

10 MR. MERKEL: Again, Your Honor, they
11 brought up Dr. Russell this morning in direct
12 examination.

13 JUDGE CARLSON: I'll permit the
14 examination he's referring to testify in another
15 trial, but I'll permit examination on this point.

16 MR. DAVID: Thank you, Your Honor.

17 JUDGE CARLSON: The witness can answer
18 the question.

19 Q. (By Mr. Merkel) And do you recall, also,
20 in that same article, Mr. Townsend, Dr. Russell
21 stating that "Some years ago, colleagues at our unit
22 asked a representative sample of 210 heroin users
23 attending 16 London drug addiction clinics to rate
24 their most needed drug from a long list that
25 included heroin, methadone, amphetamine,

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1 barbiturates, LSD, cannabis, alcohol, tea, coffee
2 and cigarettes, most which would have been tried by
3 heroin users at the time. Out of the wide choice,
4 the heroin users rated cigarettes as their most
5 needed drug, implying they perceived it as being
6 more difficult to cope without nicotine than without
7 heroin, itself." Do you recall that content of
8 Dr. Russell's article?

9 A. I don't recall that exactly, no.

10 Q. You're aware of that study of the heroin
11 addicts, Mr. Townsend?

12 A. I think there have been a number of
13 studies on the addictiveness of heroin, cocaine,
14 alcohol and cigarette smoking, trying to relate
15 those two. I'm not an expert in addiction, so I
16 know there have been a number of studies conducted.

17 Q. But in light of that characterization by
18 210 heroin addicts, you would still call nicotine a
19 mild pharmacological effect?

20 A. No question about it. There is a mild
21 pharmacology, and it's totally unlike heroin and
22 cocaine.

23 MR. MERKEL: Indulge me just a moment,
24 please, sir.

25 Q. (By Mr. Merkel) Two other areas,

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1 Mr. Townsend. Aside from whatever lowering of tar
2 properties that expanded tobacco had, did it have an
3 economic benefit to the company as well?

4 A. Sure, it did.

5 Q. How much money did it save on an annual
6 basis to expand the tobacco?

7 A. I don't know. It did save a lot of money
8 for the company, but I'll tell you --

9 Q. Billions of dollars?

10 A. Let me finish, please. But I'll tell you
11 if you go back and look at Jim Frederick's, and his
12 invention disclosure, internal document where he
13 first had the idea to do this, the objective is very
14 clear, it says to lower tar by reducing the amount
15 of tobacco burn. He goes through and describes his
16 invention, and reduced it to practice. Did it save
17 money, sure. But it's very clear from the patents,
18 the patent disclosures and all of that information
19 it was invented to the reduce tar.

20 Q. You gave some figure to Mr. David that
21 you thought your company had spent on all those
22 projects represented on those little boards there.
23 What was the figure you finally came up with?

24 A. Well, I didn't come up with a specific
25 figure. What I told you was for the Premier and

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1 Eclipse project, the Premier and the improved

2 Premier type projects, we've probably spent close to
3 a billion dollars.

4 Q. And what's your annual budget for
5 advertising on an annual basis your products?

6 A. Oh, I don't recall offhand.

7 Q. Over a billion dollars?

8 A. I don't recall offhand. I would say no.

9 Q. You just don't have any idea?

10 A. I don't know what the marketing budget
11 is. I'm a scientist.

12 MR. MERKEL: We have nothing further,
13 Your Honor.

14 JUDGE CARLSON: Redirect, Mr. David?

15 MR. DAVID: Yes, sir, Your Honor, I have
16 just a little bit of redirect.

17 JUDGE CARLSON: All right.

18 REDIRECT EXAMINATION BY MR. DAVID:

19 Q. Dr. Townsend, all cigarettes are risky,
20 correct, even low tar cigarettes?

21 A. All cigarettes carry risks.

22 Q. And are there laws and regulations that
23 govern what the cigarette companies can tell the
24 public in terms of health claims about cigarettes?

25 A. Very definitely. When we entered into an

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1 agreement with the Federal Trade Commission in 1967,
2 there was clear agreement what you could and
3 couldn't say about tar numbers, the levels of tar
4 and how you could advertise. And, in particular,
5 the tobacco companies were prevented, prohibited, by
6 law, from advertising lower tar cigarettes as safer.

7 Q. So why haven't you told the public that
8 low tar is safer?

9 A. Because the government will not allow us
10 to. Do I believe it, yes, I do.

11 Q. Have you recently made some health claims
12 about Eclipse in Texas?

13 A. Yes, we have.

14 Q. And why have you done that?

15 A. Because we have now the full scientific
16 evidence that will fully support, not just
17 epidemiology, we have animal studies, human studies,
18 short-term biological studies. We've had all this
19 reviewed by an outside expert, a panel of
20 toxicologists, and medical researchers and medical
21 scientists. And we now have the data where we feel
22 that we can scientifically support the health claims
23 that we're making. And those health claims reduced
24 risk claims.

25 Q. Dr. Townsend, before we close, what have

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1 been the contributions of Reynolds in the field of
2 cigarette design?

3 A. The contributions?

4 Q. Yes.

5 A. I feel the scientists at Reynolds have
6 been the pioneers in cigarette design,
7 particularly --

8 MR. MERKEL: Your Honor, we object. It's
9 not anything that was brought out on direct,
10 improper redirect.

11 JUDGE CARLSON: I overrule the objection.

12 A. May I answer?

13 JUDGE CARLSON: Yes.

14 A. I think we've been the leaders in
15 cigarette design, particularly in the area of risk
16 reduction, the science at Reynolds has been a large
17 part of our focus. So I think we've been the
18 leaders. And the other thing is I think we've
19 developed for the very first time alternatives to
20 typical tobacco burning cigarettes that have been on
21 the market for a long, long time.

22 Are they perfect? No, of course they're
23 not perfect, but do you have to start somewhere?
24 Absolutely. We're test marketing the second version
25 of this Premier type product called Eclipse with

1944 1 claims, and are we making a difference? I believe
2 we are. But it isn't perfect, but we've got to
3 start somewhere.

4 Q. (By Mr. David) Dr. Townsend, you're a
5 chemist, a Ph.D. Why do you work at Reynolds?

6 A. I think there's several reasons. First
7 of all, when I first accepted this job, it was clear
8 to me there was an intellectual challenge. This is
9 very complex. And dealing with this kind of product
10 and the challenges of trying to reduce the risks was
11 a real challenge. So there's the intellectual piece
12 of it. The other part is -- is the emotional piece,
13 because I'm working with some really talented
14 scientists, really dedicated people who really care
15 about what they're doing, and it drives me.

16 Q. And you're aware of the risks of smoking
17 to health, yet you continue to smoke; is that
18 correct?

19 A. I am a smoker.

20 Q. That's your choice?

21 A. It's clearly my choice, and I'm very
22 aware of the risks. I smoke Salem Ultra Lights,
23 actually.

24 Q. And do you think that your choice to
25 smoke with the awareness of the risk is a reasonable
1945 choice?

2 MR. MERKEL: Objection, Your Honor. He's
3 not an expert here on what is reasonable. That's an
4 ultimate question for the jury.

5 MR. DAVID: That's the same question that
6 Mr. Merkel --

7 MR. MERKEL: What he does is not
8 relevant.

9 JUDGE CARLSON: I'll overrule the
10 objection.

11 A. For me, it's reasonable. For somebody
12 else it may not be. It's reasonable for me because
13 I'm -- I choose to take those risks. For somebody
14 else who may not choose to take those risks, it may
15 be an unreasonable decision.

16 Q. (By Mr. David) Dr. Townsend, have you
17 and has Reynolds done, in your opinion, everything
18 feasible to address the health concerns about
19 cigarette smoking short of not selling the
20 cigarettes?

21 A. It's -- from my vantage point, being in
22 the company for -- for nearly 23 years, I believe
23 that we've done everything we can to reduce the

24 risks that's technically feasible and that will
25 result in commercial -- commercially acceptable

1946

1 products. We're continuing, also, to try to
2 research and develop yet different approaches.

3 Even things that are different than
4 Premier and Eclipse and are very different than
5 today's tobacco burning cigarettes. So I think
6 we've been very responsible. I think we've done
7 everything we can, but we're not stopping. We're
8 continuing on.

9 Q. You're proud of the work you've done at
10 Reynolds?

11 A. Yeah, very much.

12 Q. And when you were involved in this
13 cigarette design effort over the course of the last
14 23 years, did you honestly believe that your work
15 would have a positive impact in terms of reducing
16 the risks associated with smoking?

17 A. Absolutely.

18 Q. Now, Dr. Burns has testified that he
19 doesn't believe you and Reynolds acted responsibly.
20 How does that make you feel, Mr. Townsend?

21 A. It makes me very --

22 MR. MERKEL: Objection, Your Honor, how
23 it makes him feel. It's totally irrelevant.

24 JUDGE CARLSON: I'll sustain the
25 objection.

1947

1 Q. Do you agree with Dr. Burns?

2 A. Do you I agree with Dr. Burns --

3 MR. MERKEL: Again, Your Honor, it's not
4 anything that was gone into on cross examination.
5 We object. It's outside the scope of redirect.

6 JUDGE CARLSON: Overrule on that point.

7 A. I'm sorry. Can you --

8 Q. (By Mr. David) Dr. Burns testified he
9 does not believe Reynolds acted responsibly. Do you
10 agree with Dr. Burns?

11 A. I completely disagree with Dr. Burns.

12 Q. Why is that?

13 A. We have acted responsibly. The
14 scientists at Reynolds have been the forefront of
15 actually reducing the risk of smoking through
16 cigarette design. Through trying to step way
17 beyond, beyond what most people imagine as a
18 cigarette which burns tobacco. Try to develop
19 cigarettes that do different things, heat tobacco,
20 not burn it.

21 We're looking at other things that I
22 can't talk about here today, again, because it's
23 highly proprietary, again, to reduce the risk of
24 smoking. And they look very different than the
25 cigarettes that are sold on the market. And even

1948

1 with that, we've continued to try to reduce the risk
2 of current tobacco burning cigarettes by making
3 lower risk, low tar cigarettes, making the lower tar
4 and the ultra low tar cigarettes more acceptable to
5 consumers so that more people will actually trade to
6 those products, by trying to develop processes to
7 reduce various constituents in smoke, through
8 selective filtration and selective filters. Yes, I

9 believe we've been very responsible, and yes, I
10 really disagree with Dr. Burns.
11 MR. DAVID: Thank you, Dr. Townsend.
12 A. Thank you.
13 MR. DAVID: That's all I have, Your
14 Honor.
15 JUDGE CARLSON: Dr. Townsend finally
16 released or is he subject to recall?
17 MR. MERKEL: We would ask he be left
18 subject to recall, Your Honor.
19 MR. DAVID: There's no reason to make it
20 subject to recall.
21 MR. MERKEL: Second phase of the case.
22 MR. DAVID: I agree, Your Honor.
23 MR. MERKEL: I don't care where he goes
24 in the meantime, as long as he comes back.
25 JUDGE CARLSON: Thank you, Doctor.

1949
1 THE WITNESS: Thank you, Your Honor.
2 JUDGE CARLSON: I'm sure they know how to
3 get in touch with you. Let's go ahead and take a
4 short break. We've been in place for a while,
5 before we start the next witness.
6 (A short break was taken.)
7 (Jury enters courtroom.)
8 JUDGE CARLSON: Mr. Ulmer.
9 MR. ULMER: Call Pauline Harris.

PAULINE HARRIS,
11 having been first duly sworn, was examined and
12 testified as follows:
13 DIRECT EXAMINATION BY MR. ULMER:
14 Q. Ms. Harris, tell the jury your full name,
15 please, ma'am.
16 A. Pauline H. Harris.
17 Q. And you live here in [DELETED]?
18 A. I do.
19 Q. And we had the benefit late last year of
20 taking your deposition. Do you remember that?
21 A. Yes, sir.
22 Q. Okay. Now, going -- let me just let the
23 jury know a little something about you. You've
24 lived here in [DELETED] for a number of years?
25 A. Since 1952.

1950
1 Q. All right. And you have nine children, I
2 believe?
3 A. I do.
4 Q. Five -- five girls and four boys?
5 A. Correct.
6 Q. And I think you told us that they were a
7 very loving family, and they watched after you real
8 well.
9 A. Yes, sir.
10 Q. I'll bet you deserve it. Now, you also
11 told us, I believe, at your deposition that all of
12 your children had finished college.
13 A. They have.
14 Q. Now, the reason you're -- that we've
15 called you here today is about Joe Nunnally. Did
16 you know Joe Nunnally?
17 A. I did.
18 Q. Did you teach him in school?
19 A. In the 5th grade.

20 Q. Do you remember him well?
21 A. I do.
22 Q. Okay. But before we get to the subject
23 of your teaching of Joe Nunnally, let me find out
24 just a little bit more about you. I know that you
25 were married, that your husband is now deceased.

1951

1 A. Yes, sir.
2 Q. And your husband, at one point in his
3 life, was a smoker, I believe.
4 A. He was.
5 Q. But he had quit, though, for a number of
6 years before he died?
7 A. He did.
8 Q. How did he quit, Ms. Harris?

9 A. On his own, just decided that it was
10 against his health.

11 Q. And I think -- just tell me this: Was
12 your father a smoker?

13 A. He was a smoker, and he passed away with
14 lung cancer due to smoking.

15 Q. Have you ever smoked?

16 A. Never had one in my mouth.

17 Q. What is -- tell the jury what is your
18 attitude or view about smoking?

19 A. It is very harmful, I believe it's very
20 harmful to a person's life. It is a bad habit.
21 It's an expensive habit. It effects especially the
22 lungs of a person. And I used to teach that if they
23 wanted to be good athletes, athletes, smoking would
24 keep them from being able to run or do their best in
25 athletics.

1952

1 Q. Let me ask you a question here. You
2 indicated to the jury that you taught Joe Nunnally
3 when he was in the 5th grade, and you remember him
4 very well. Was your classroom the type where your
5 children came in and spent the whole day in one
6 room, or did they cycle to a different room every 50
7 minutes?

8 A. They stayed with me all day.

9 Q. And did you teach him the full year while
10 he was in the 5th grade?

11 A. Yes, sir.

12 Q. And as part of the curriculum, did you
13 teach all the subjects to the students that were
14 under your care?

15 A. I did.

16 Q. And the subjects would include, I would
17 assume, reading, writing, arithmetic and health and
18 hygiene, things of that nature?

19 A. Geography, all of the subjects.

20 Q. Was health and hygiene one of the
21 subjects that was taught?

22 A. It was, yes, sir.

23 Q. And did you have a textbook that you used
24 to help, you know, convey the message of -- about
25 health and hygiene?

1953

1 A. Yes, sir.

2 Q. Were the -- was the subject of cigarettes
3 and alcohol covered, not only in your book, but in
4 your teachings to your students?

5 A. Definitely, yes, sir. The book was
6 divided into sections. And there was one section on
7 harmful effects of tobacco and alcohol.

8 Q. Okay. Did you -- tell the jury whether
9 or not you conveyed that message to all of your
10 students in as forceful a way as you knew how to do
11 it.

12 A. I did, I did and gave them tests after
13 each chapter in the book. And they continued to
14 have tests on that until they could pass it, until
15 they knew it.

16 Q. And this included Joe Nunnally?

17 A. Yes, sir.

18 Q. You indicated that you -- let me back up.
19 How many years did you teach before you retired?

20 A. 31.

21 Q. 31 years?

22 A. Yes, sir.

23 Q. And you taught -- I don't think I
24 established. This is my oversight. You taught at
25 Horn Lake Elementary School?

1954

1 A. For seven years.

2 Q. Now, at Horn Lake Elementary School, did
3 they permit smoking?

4 A. You never heard of smoking. If they
5 smoked, they got in trouble. But I never heard of
6 anyone smoking. It wasn't discussed as far as
7 school was concerned. But they weren't allowed to
8 smoke, no, sir.

9 Q. Okay. What about -- was Horn Lake
10 Elementary School -- you'll have to forgive me. I'm
11 from Jackson, so I don't know this. Was Horn Lake
12 Elementary, was the campus a part of the high school
13 campus or not? I don't know.

14 A. Well, elementary children were in a
15 certain area on the campus.

16 Q. Okay.

17 A. And high school were in another area.

18 Q. Was smoking permitted on any of the
19 campuses back at this time period?

20 A. No, no, no, sir.

21 Q. Now, did a student in the 5th grade would
22 be approximately 10 or 11 years of age, something on
23 that order?

24 A. That's right.

25 Q. About right?

1955

1 A. Yes.

2 Q. I have a 12-year-old going on 13 that's
3 going into the 7th grade, so I'm working backwards
4 from the that. Did you ever see Joe Nunnally
5 smoked?

6 A. I never even suspicioned him smoking.

7 Q. Okay.

8 A. No.

9 Q. Did -- are you the type of person that's
10 able or not to detect smoke or the smell of smoke a
11 person's body?

12 A. Very much. I -- anyone that walks in my
13 house who has been smoking, I can tell.

14 Q. So tell the jury just these final few
15 things. Did you or not teach Joe Nunnally the

16 health hazards associated with smoking?
17 A. I did. He was in the class, and I
18 stressed very much that it was harmful. That they
19 should not smoke, and he -- yes, he took the tests.
20 He knew.

21 Q. Okay. And tell the jury whether or not
22 you ever observed Joe Nunnally smoking. I'm talking
23 about when he was in the 5th grade, not perhaps
24 later in life.

25 A. Really, I never saw Joe smoke, because I
1956
1 never saw him too much after I left Horn Lake. But
2 as long as I was around -- around him, I never knew
3 that he smoked.

4 Q. Did you ever detect the smell of smoke on
5 his body?

6 A. No.

7 Q. Did you ever detect the smell of smoke,
8 to your recollection, on any child 10 years, 11
9 years of age in your 5th grade classroom?

10 A. No, sir.

11 Q. If -- is a 10-year-old or an 11-year-old,
12 whatever it works out to be, are they or not
13 permitted to smoke at school? I think we've
14 answered that they're not.

15 A. They're not.

16 Q. Are they permitted to smoke at home?

17 A. Well, that's up to their parents.

18 Q. Did you know Joe Nunnally's mother?

19 A. Yes.

20 Q. Do you know her name?

21 A. No, I just knew her as Ms. -- as
22 Ms. Nunnally.

23 Q. You had indicated in the deposition that
24 Marion was her first name. Does that refresh --

25 MR. MERKEL: Your Honor, we object to

1957
1 counsel leading the witness. We've been patient
2 about it. It is his witness.

3 JUDGE CARLSON: I'll sustain as to
4 leading. Rephrase it.

5 MR. ULMER: All right.

6 Q. (By Mr. Ulmer) Tell the jury what you
7 told the students as specifically as you can about
8 the detrimental effects of smoking on the lung and
9 on the body in general.

10 A. I explained to them that smoking after so
11 long would deteriorate their lungs. Would cause
12 breathing problem -- bad breathing problems, health
13 problems in general, and -- and it -- it would
14 shorten their life, more or less.

15 MR. ULMER: Thank you, Ms. Harris. I
16 tender the witness, Your Honor.

17 JUDGE CARLSON: Mr. Merkel.

18 CROSS EXAMINATION BY MR. MERKEL.

19 Q. I'm Charlie Merkel. I don't believe you
20 and I have ever met, have we?

21 A. No.

22 Q. You gave a deposition, like Mr. Ulmer
23 said, back in October of '99. How many times,
24 total, other than that the date when you gave the
25 deposition, have you talked to some of these lawyers

1958

1 from the tobacco company?
2 A. Just that time and one other.
3 Q. One before that?
4 A. Yeah, one -- well, one this week when
5 they came by to let me know that I would be called
6 on jury -- on --
7 Q. So you talked to some of them before you
8 gave the deposition, then you gave the deposition,
9 and then you talked again to them this week?
10 A. Well, no, sir, I didn't talk to them
11 before I gave the deposition.
12 Q. You never talked to anybody before the
13 deposition?
14 A. No, not -- except I think it was a
15 Mr. Bailey from Jackson, the insurance company, came
16 by the house was the first that let me know that
17 this was coming up.
18 Q. Okay. Did he tell you he was with the
19 tobacco company, that that's who he represented?
20 A. I don't believe he did. He just asked me
21 some questions. Asking me if I knew Joe and if I
22 ever taught him, and just general questions like
23 that.
24 Q. So before the deposition, some months or
25 years before that, somebody came by and asked you a
1959
1 lot of questions about Joe and so forth?
2 A. A few questions, yes.
3 Q. Now, looking at your deposition,
4 Ms. Harris, Mr. Ulmer asked you a while ago if you
5 talked to -- if you talked to your class about he
6 said the risks of smoking. And of course, he didn't
7 explain to you what he meant by "the risks of
8 smoking." And you didn't know anything about cancer
9 being a risk of smoking back when you were doing
10 this in the 5th grade, did you?
11 A. Not -- no, not cancer. I knew it was bad
12 as far as the -- your breathing ability. I knew
13 that. And I knew something about it due to my daddy
14 having smoked and having lung cancer.
15 Q. Well, as far as these children were
16 concerned, I believe what you said in your
17 deposition was that your book that you taught from
18 was divided into two categories, good things for the
19 body and bad things for the body, right?
20 A. Well, you may put it that way.
21 Q. Good foods to the eat?
22 A. Yes, sir.
23 Q. Exercise, go to bed early?
24 A. Yes, sir.
25 Q. I mean just kind of general --
1960
1 A. That's right.
2 Q. -- health tips that were good. And then
3 on the bad side were, I guess, staying up late, and
4 smoking and drinking and whatever else may have been
5 bad?
6 A. Yes, sir, that's right.
7 Q. Eating all French fries instead of
8 vegetables or something like that?
9 A. Yes, sir, that's right.
10 Q. And you conveyed that information to the
11 class, and I believe you said back when we were

12 teaching health, cancer was not very prevalent.
13 Shortness of breath I told them, and they wouldn't
14 be good athletes if they smoked.

15 A. That's correct.

16 Q. So that's what you really told them, it
17 would cut their wind or make their breath short, and
18 they wouldn't participate well in sports, right?

19 A. Well, and --

20 MR. ULMER: Your Honor, he's only read
21 two sentences out of an answer. I object on the
22 basis of completeness. I don't mind her being
23 examined, but she ought to have the full question
24 and answer.

25 MR. MERKEL: I haven't asked her anything

1961 1 about her deposition. I asked her a question on
2 cross examination.

3 JUDGE CARLSON: I'll overrule the
4 objection.

5 Q. (By Mr. Merkel) Is that your
6 recollection?

7 A. Well, I let them know that it was bad
8 harmful to the body, especially to the lungs, to
9 smoke. And that it was an expensive habit, a bad
10 habit. A habit in a lot of people don't like to be
11 around you when you're a smoker because of the odor.

12 Q. Yes, ma'am, I agree with you there. But
13 you never mentioned cancer to them at that time
14 because that wasn't even known at that time, was it?

15 A. Well, no, sir, not exactly, no, sir.

16 Q. And you didn't mention anything about
17 heart disease at that time, did you?

18 A. Well, yes, sir, heart disease.

19 Q. You did not, did you?

20 A. I -- I let them know that it was
21 against -- harmful to the heart.

22 Q. Well, let me show you your deposition if
23 I can, Ms. Harris.

24 A. Well, I may not have said it there.

25 MR. ULMER: What page?

1962

1 MR. MERKEL: Page 15.

2 Q. (By Mr. Merkel) "Okay. What about heart
3 diseases, things of that nature? Did you or do you
4 remember whether or not you talked about that with
5 your students?" And your answer, "No, I don't
6 remember about heart disease. I didn't discuss it
7 so far as I can remember."

8 A. Okay. All right.

9 Q. Does that seem right to you?

10 A. That's all right.

11 Q. That wasn't known, then, either, was it?

12 A. That's right.

13 Q. Do you know whether the high school
14 children there at Horn Lake, the ones in the 11th
15 and 12th grade, if they had permission from their
16 parents, did they have something down there behind
17 the -- in a basement bathroom that they called a
18 smoke hole?

19 A. Not in school. I did hear one time that
20 they were allowed to go back behind the gym at
21 recess time.

22 Q. Okay. But that, of course, wasn't

23 Kindergarten or elementary children.

24 A. No elementary.

25 Q. That was high school children.

1963 1 A. That was high school.

2 Q. Yes, ma'am. And I believe you said that
3 as far as you knew you couldn't remember anything
4 ever being advertised by the tobacco company that
5 they've ever put out against smoking; is that right?

6 A. That's correct, back when I was teaching
7 5th grade.

8 Q. So whatever you were teaching from the
9 book, none of it came from the tobacco companies
10 telling anybody that it was bad to smoke?

11 A. No, sir. It was all what the education
12 department had put in the book to teach.

13 Q. Okay.

14 MR. MERKEL: Thank you, Ms. Harris.

15 JUDGE CARLSON: Redirect.

16 MR. ULMER: Just a question or two.

17 REDIRECT EXAMINATION BY MR. ULMER:

18 Q. Before you were deposed by the lawyers on
19 both sides of this case, October 25th of '99, had
20 you ever laid eyes on me? I know that's probably
21 not a very memorable event but --

22 A. Laid eyes --

23 Q. Had you ever met me before we took your
24 deposition?

25 A. No, sir.

1964

1 Q. All right. And has your testimony on the
2 this jury, has it been truthful in every respect?

3 A. I have, yes.

4 MR. ULMER: I have nothing further, Your
5 Honor.

6 JUDGE CARLSON: Ms. Harris released? Is
7 she finally released.

8 MR. ULMER: Yes, Your Honor.

9 JUDGE CARLSON: Thank you, Ms. Harris.

10 MR. LISTON: We'd like to call Mr. James
11 Fischer, Your Honor.

12 JAMES FISCHER,

13 having been first duly sworn, was examined and
14 testified as follows:

15 DIRECT EXAMINATION BY MR. LISTON:

16 Q. How are you, Mr. Fischer?

17 A. Fine. How are you doing?

18 Q. Fine, thank you. Would you tell the jury
19 your full name, please, sir?

20 A. James Andrew Fischer, Sr.

21 Q. And where do you live, sir?

22 A. [DELETED].

23 Q. How old are you now?

24 A. 48.

25 Q. 48. Your year of birth would be 1952?

1965

1 A. '52, yes, sir.

2 Q. And what do you do for a living,

3 Mr. Fischer?

4 A. Let me catch my breath. I'm nervous.

5 Q. Would you like some water?

6 A. No, I'll be all right. I don't know why
7 I'm nervous. Okay.

8 Q. You're just not used to testifying.

9 A. The last time I was in here was during a
10 divorce thing. I didn't like that. It wasn't my
11 divorce, but memories, I guess. I'm sorry.

12 Q. Your occupation?

13 A. I work at Smith and Nephew on Brooks
14 Road. I'm a quality control technician.

15 Q. All right, sir. Mr. Fischer, are you the
16 same James Fischer whose sworn testimony was taken
17 in this case by deposition, I think it probably was
18 in the Fairfield motel back on October the 21st,
19 1999?

20 A. Yes, sir.

21 Q. All right, sir. Do you recall that you
22 were questioned by probably Mr. -- this man here,
23 Mr. Mike Ulmer?

24 A. Yes, sir.

25 Q. And probably Mr. Jack Dodson, also?

1966

1 A. Yes, sir.

2 Q. The third lawyer over there. And you
3 gave your testimony under oath at that time, did you
4 not?

5 A. Yes, sir.

6 Q. And that, as you recall, was the same
7 oath that you just took a few minutes ago; is that
8 correct?

9 A. I believe it was, yes, sir.

10 Q. I want to give you a copy of that
11 transcript of your deposition, Mr. Fischer, just in
12 case you need it to refer to to refresh your
13 recollection as we go through these questions.

14 A. Thank you.

15 Q. How long have you lived in the [DELETED]
16 area?

17 A. Every since I was in the 4th grade.

18 Q. All right, sir. That would have been
19 about eight-years-old?

20 A. Yes, sir.

21 Q. And where did you attend elementary
22 school?

23 A. Horn Lake Elementary.

24 Q. And then high school?

25 A. High school, junior high and high school.

1967

1 Q. And when did you graduate high school?

2 A. 1970.

3 Q. Did you attend college?

4 A. I went to Northwest Junior College and
5 graduated and went to Ole Miss.

6 Q. Did you obtain an associate degree --

7 A. Yes, sir.

8 Q. -- from Northwest? When did you get that
9 associate degree?

10 A. Well, it took me three years, but --

11 Q. That would be about 1973?

12 A. '73.

13 Q. All right, sir. After you finished
14 Northwest, did you go directly to Ole Miss then, or
15 did you go out and work then?

16 A. Yes, sir, I went directly.

17 Q. And how long were you at Ole Miss?

18 A. Two years, commuting back and forth.

19 Q. After you got through Ole Miss, did you
20 have an opportunity to work with Joe Nunnally?
21 A. Yes, sir.
22 Q. And where was that?
23 A. At McDonald's in [DELETED]. I believe
24 that was -- that time ran concurrently with going to
25 Ole Miss, though.

1968
1 Q. Okay. So that would have been like '72,
2 '73, in that area?
3 A. '73 to '74, somewhere in that area.
4 Q. How long had you known Joe at the time
5 you started working with him at McDonald's?
6 A. I start hanging around with Joe when we
7 were like 13-years-old.

8 Q. How did you meet Joe?
9 A. Through school we knew each other. We
10 really started hanging around together one summer.
11 He lives down a couple of blocks from me, and he
12 used to like to go over to this girl's house and
13 play cards, and I went --

14 Q. That's the girl you finally married,
15 wasn't it?

16 A. Yes, sir.
17 Q. All right, sir.
18 A. And that's when we really started hanging
19 together.
20 Q. And did you live in [DELETED] at that
21 time, Mr. Fischer?
22 A. Yes, sir.
23 Q. Had your family recently moved into that
24 neighborhood when you first got to know Joe?
25 A. I'm going to answer this as best I can.

1969
1 Q. Sure.
2 A. I can't really remember. It's been a
3 long time, but no, we had not just recently moved in
4 there.
5 Q. How old were you -- I believe you said
6 you were 13 when you first met Joe?
7 A. When we first started hanging around
8 together. I knew him before that.
9 Q. Excuse me. When did you first get to
10 know him?
11 A. At 13.
12 Q. Okay.
13 A. With we were -- we knew each other at
14 school, probably said hi or whatever, prior to that.
15 But we got to be really close friends at that point.
16 Q. You and Joe were the same age, were you
17 not?
18 A. Yes, sir.
19 Q. And what grade were you all in at 13?
20 A. 7th, I believe.
21 Q. And attended the same school?
22 A. Yes, sir.
23 Q. That would have been probably junior
24 high?
25 A. Yes, sir.

1970
1 Q. And what grade the would you have been in
2 when you were 13?
3 A. I believe it was 7th grade.

4 Q. Did you and Joe become close friends
5 after -- after you met him?
6 A. Yes, sir.
7 Q. How long did this friendship continue,
8 Mr. Fischer?
9 A. Until he passed away.
10 Q. Who else did you and Joe run around with?
11 A. It was pretty much Joe, Kirk Barnes and
12 John Holder.
13 Q. Okay.
14 A. Us four.
15 Q. You all -- all of you all were interested
16 in the theater, weren't you?
17 A. Yes, sir.
18 Q. And later on, did y'all organize a -- a
19 drama society or school?
20 A. Yes, sir, we organized a group, a theater
21 group called Sock and Buskin.
22 Q. Did you and Joe attend college at
23 Northwest together?
24 A. One year, yes, sir. I believe it was one
25 year.

1971

1 Q. Mr. Fischer, when you first met Joe, was
2 he a cigarette smoker at that time?
3 A. Yes, sir, he was.
4 Q. What brand was he smoking?
5 A. I'm not absolutely sure what brand he
6 smoked.
7 Q. Did you tell us in your deposition, if
8 you'd look at page 16, that you thought they were --
9 MR. MERKEL: Excuse me, Your Honor,
10 object to an attempt to lead him. If we need to be,
11 I can be heard on that matter.
12 MR. LISTON: I was just trying to
13 recollect -- refresh his recollection.
14 MR. MERKEL: He made a guess in a
15 deposition, Your Honor, which I don't think is
16 proper for that. If he asked him to guess again
17 today, it would be objectionable. So I don't think
18 we'd get around that problem by asking him if he
19 guessed something once before.
20 JUDGE CARLSON: Well, I'll permit him
21 to -- I understand what the objection is. But if he
22 needs to refer to any document, his deposition or
23 whatever to refresh his memory, he can do that. He
24 can be cross examined on that point.
25 Q. (By Mr. Liston) I don't have a copy of

1972

1 that deposition, but I believe it's on page -- page
2 16, probably.
3 A. My answer was I could give a guess --
4 MR. MERKEL: Excuse me just a minute.
5 THE WITNESS: Yes, sir.
6 MR. MERKEL: Your Honor, again, what he's
7 done is made a guess in an answer. He's clearly
8 said he doesn't know. But they asked him to make an
9 assumption or a guess or speculate. And if you'd
10 look at it, I think it will be clear what we're
11 talking about.
12 JUDGE CARLSON: Be careful of that chair.
13 It's happened before.
14 MR. MERKEL: I believe it starts on line

15 1, Your Honor, and goes down through line 12 or 13.
16 JUDGE CARLSON: Based on my reading of
17 the question on line 4, I'll overrule the objection,
18 and he can be question. You can cross examine on
19 that. He'll ask you the question again, I'm sure.

20 THE WITNESS: So I answer it?

21 JUDGE CARLSON: Yes, sir.

22 Q. (By Mr. Liston) Yes, sir. What was your
23 best -- what was your answer at the time the
24 deposition was taken about what brand Joe was
25 smoking when you first met him?

1973

1 A. My answer was I believe that he smoked
2 Marlboro.

3 Q. All right. Thank you. Do you know when
4 Joe started smoking, Mr. Fischer?

5 A. No, sir, I don't.

6 Q. Did he ever say anything to you about how
7 long he had been smoking?

8 A. No, sir.

9 Q. Did -- later on, did, to your knowledge,
10 Joe switch cigarette brands?

11 A. At some point, he switched cigarette
12 brands, yes, sir.

13 Q. And he went from -- went to what kind of
14 brand?

15 A. Salem.

16 Q. Do you know when that was?

17 A. No, sir, I don't.

18 Q. Okay. Did Joe ever tell you why he
19 started smoking?

20 A. No, sir.

21 Q. How many cigarettes per day on an average
22 was Joe smoking from the time you first met him up
23 to age 15, that two-year period?

24 A. Well, again, I think -- like I said in
25 the deposition, I'd be guessing, and I -- if that's

1974

1 what I need to do, I'll do that.

2 Q. Well, look at page 14 and 15.

3 A. 13 and 14?

4 MR. MERKEL: Again, Your Honor, we object
5 if all the witness can do is guess. There's no way
6 he can answer a question. If he guessed on
7 deposition, that's fine. But here, the standard is
8 greater than on a discovery deposition, and we
9 object. If he doesn't know, he doesn't know.

10 JUDGE CARLSON: Again, I'll let him refer
11 to his deposition, respond, subject to cross
12 examination.

13 A. I don't see it on -- where I answered
14 that question, but I do remember reading the
15 deposition, and at that time, I believe that we were
16 averaging about five cigarettes a day.

17 Q. (By Mr. Liston) All right. And you say
18 "we," you mean you were smoking that many also?

19 A. I answered that question relative to me
20 and just felt like he was probably doing the same.

21 Q. All right, sir. Well, you were -- you
22 were around him a lot during that period of time.
23 Y'all were good friends, weren't you?

24 A. Yes, sir.

25 Q. Why do you really think that,

1975

1 Mr. Fischer, that both of you were smoking the same
2 number of cigarettes today the at those early teen
3 years?

4 A. Why do I think that we were?

5 Q. Yes, sir.

6 A. I guess I think that we were because our
7 habits and places that we hung out together were
8 pretty much the same.

9 Q. Does it have anything to do with where
10 you were allowed to smoke, or where you could
11 smoke --

12 A. Yes, thank you.

13 Q. -- and where you couldn't smoke?

14 A. Definitely. You couldn't smoke at home.
15 So that decreased the amount of cigarettes that you
16 would smoke.

17 Q. And how about at school at that age?

18 A. You could smoke at school. I never did,
19 and as far as I know, Joe didn't.

20 Q. Pardon me. Did you say did or didn't?

21 A. Did not.

22 Q. Okay. How much was Joe smoking by the
23 time you got to Northwest -- by the time he got to
24 Northwest?

25 A. I don't know for sure. I could tell you,

1976

1 you know, approximately how many I was smoking under
2 the same situation, about a pack a day, I'm sorry.

3 Q. When you were working at McDonald's with
4 Joe, were there any restrictions that McDonald's had
5 on where employees could smoke or when they could
6 smoke?

7 A. The only restriction was that you
8 couldn't smoke up in the serving area. You couldn't
9 smoke where they were handing the hamburgers to the
10 customers.

11 Q. Did you and Joe keep in close contact
12 after you left McDonald's?

13 A. Yes, sir.

14 Q. Did you see him after that time almost on
15 a daily basis, Mr. Fischer?

16 A. I wouldn't say a daily basis, no, sir.

17 Q. How often a week?

18 A. Two, maybe three times a week.

19 Q. Did his smoking habit, and by that I mean
20 the amount that he smoked, change insofar as daily
21 use, after you left McDonald's and when you would
22 see him later on?

23 A. I do not know that. I really don't.

24 Q. You've told us, Mr. Fischer, that you and
25 Joe, of course, were close friends and remained

1977

1 close friends up until the time of his death. You
2 were in a position to share with us and form
3 opinions about -- about Joe's character, and what
4 kind of person he was, are you not?

5 A. I believe.

6 Q. Yes, sir. What can you --

7 A. I am.

8 Q. What can you tell the jury about his
9 leadership ability?

10 A. Well, as far as being a manager at

11 McDonald's, he was an excellent manager. He was a
12 good leader. I hated to admit it at the time, but
13 he was.

14 Q. You worked for him, did you not?

15 A. Yes. He loved it.

16 Q. And did you know after he left McDonald's
17 where he went to work?

18 A. I believe that he went to Champion. I'm
19 not sure that he -- I know he ended up at Champion.
20 I'm not sure if he went anywhere prior to that.

21 Q. And he made good progress at Champion,
22 did he not?

23 A. From everything I saw, he did really good
24 at Champion.

25 Q. Based on your observations of Joe over
1978

1 this period of time, what would you say about
2 whether or not he was strong willed and had a mind
3 of his own?

4 A. I would say Joe was a very strong willed
5 person.

6 Q. Comment for us, Mr. Fischer, if you
7 would, please, that on the subject of when Joe made
8 up his mind that he was going to do something, that
9 he set a goal for himself or he was going to
10 accomplish a particular thing, whether or not he
11 would follow through with that to reach that goal?
12 Did he have that much determination?

13 MR. MERKEL: Objection, Your Honor,
14 relevancy. He's not an expert of any type on what
15 anybody could do about anything.

16 JUDGE CARLSON: Well, I'll permit him to
17 answer to the extent he knows of his own personal
18 knowledge and observation.

19 A. Would you ask that again, please?

20 Q. (By Mr. Liston) Yes, sir. What I'm
21 asking you is was he the kind of person -- you've
22 told us that he was determined, strong willed and
23 strong-minded person. When he made up his mind that
24 he wanted to accomplish a goal or do a specific
25 thing, was he the type of person that, from what you

1979
1 saw, that would follow through with that and reach
2 that goal?

3 A. Joe would do that as far as he could take
4 it, there were obstacles in the way he couldn't
5 overcome, he just overcome. Would he diligently
6 tried a lot of different things that I was
7 impressed. But there were a lot of things that he
8 tried to do that he wasn't able to achieve, either.

9 Q. Did Joe ever stop smoking from the time
10 that -- that you left McDonald's until the right
11 before his operation in 1989?

12 A. The only time that I recall Joe stopping
13 smoking was when he found out that he had lung
14 cancer.

15 Q. Right. To your knowledge, did he ever
16 try to quit smoking before that time?

17 A. Not that I know of.

18 Q. Every time that you would see him, he
19 would be smoking during that period of time?

20 A. He was a smoker. Now, whether he had one
21 in his hand at the time, I don't -- I knew he was

22 still smoking.

23 Q. Did Joe ever express to you that he had a
24 desire to quit, but he couldn't?

25 A. Not that I can recall.

1980

1 Q. Did he ever express to you that he had
2 tried to stop smoking cigarettes but that he
3 couldn't?

4 A. Not that I can recall.

5 Q. Did Joe express to you why he smoked, and
6 what he got out of it?

7 A. No, sir.

8 Q. I want to try to refresh your
9 recollection again.

10 A. All right.

11 Q. If you'd look at page 18 of your
12 deposition: The question was asked you about why
13 did Joe smoke, and you gave an answer in there.

14 A. (Examining.) It says, "Did Joe ever talk
15 to you about anything about why he smoked?" And I
16 said, "No." And then the question was, "Did he
17 enjoy smoking?" Is that where you're talking about?

18 Q. Yes.

19 A. And my answer was, "Well, I guess he did
20 because he did it."

21 Q. Did he tell you he liked the taste?

22 A. I don't recall that ever being said.

23 Q. All right, sir. When you were growing up
24 and still lived with your parents, Mr. Fischer, were
25 you permitted to smoke at home?

1981

1 A. No, sir. Well, let me qualify that. My
2 last -- in my senior year, I got a pack of
3 cigarettes for Christmas.

4 Q. All right.

5 A. So from that point on, I was able to
6 smoke.

7 Q. What were you, 17 or 18 at that time?

8 A. 17.

9 Q. Up until that time, did your parents know
10 that you were smoking?

11 A. They must have. They gave me a pack of
12 cigarettes -- a carton of cigarettes.

13 Q. Did they know you were smoking when --
14 did you say that you started smoking when you were
15 13?

16 A. Around that time. I'm not exactly sure.

17 Q. Did they know that you were smoking at
18 13, 14 --

19 A. No, sir.

20 Q. -- 15? But you did smoke --

21 A. Yes, sir.

22 Q. -- during that period of time. I take it
23 you must have had to hide that from your parents
24 during that period of time; is that correct?

25 A. Most definitely.

1982

1 Q. Did they express to you that they didn't
2 want you to smoke?

3 A. They -- I was never told that by my
4 parents.

5 Q. Did you know that they didn't want you to
6 smoke?

7 A. It was an assumption on my part. I'm not
8 sure how I got it, but --

9 Q. Why did you assume that they didn't want
10 you to smoke?

11 A. I'm not sure how I knew. I just -- it
12 was -- I don't -- I don't know how I assumed that.
13 I just -- it was one of those things that you -- as
14 a kid, you assumed.

15 Q. You've told us that Horn Lake school
16 system had some restrictions on smoking. That they
17 just let the seniors or maybe the juniors and
18 seniors go to what you called the smoking hole; is
19 that correct?

20 A. I never -- never said juniors or seniors.
21 They had a smoke hole.

22 Q. Okay.

23 A. A place where -- I'm not sure what age
24 group it was -- started to allow, you know, but they
25 had a smoke hole where you could go and smoke.

1983

1 Q. All right. Other than those
2 restrictions, did the Horn Lake High School teachers
3 do anything else to discourage student smoking?

4 A. They had a film that I recall.

5 Q. And what -- what course was that in?

6 A. I -- it was a film, and I don't believe
7 that it was any -- any course. It was a film that I
8 believe the librarian came up with, Ms. Lammey, and
9 we were all taken out of like home room to go and
10 watch this -- this movie.

11 Q. And what was the film about?

12 A. I can remember a talking cigarette.

13 Q. And what was the message of this talking
14 cigarette?

15 A. Well, it was negative -- it was things
16 against smoking. I can't remember verbatim what the
17 cigarette said, but I could tell you that it was
18 against smoking.

19 Q. Was part of the line that smoking would
20 injure your health?

21 A. It was bad for you to smoke, yes, sir.

22 Q. All right, sir. Was Joe in that group?

23 A. I don't recall. I don't know.

24 Q. Did you have health classes dealing with
25 smoking?

1984

1 A. I had health classes. I don't recall
2 whether or not smoking was ever brought up in the --
3 in the health class, itself. I just -- you know, if
4 you can refresh my memory, maybe -- maybe so, but I
5 don't -- I don't recall.

6 Q. I think I can. If you'll look on page 24
7 and 26 -- 24, first. You talked to us about a --
8 that you had a textbook in this health class that
9 had some portion of it that -- that addressed the
10 hazards of smoking.

11 A. That's the reason when you asked me the
12 health class, and I'm trying to get the wording
13 right here. I also say here that "One of our health
14 books, I think, had some book they had in school
15 that had a normal lung than a cigarette lung." But
16 I go on later on, "I'm not sure if it was the health
17 class. There was a book, though."

18 Q. That's fair.
19 A. And --
20 Q. But it was a book the school --
21 A. Absolutely.
22 Q. -- gave you?
23 A. Yes, sir.
24 Q. And what was the purpose of this
25 illustration as you understand it?

1985 1 A. The illustration was to show the
2 difference between a normal lung and a lung that had
3 lung cancer.

4 Q. Was it a smoker's lung?
5 A. I believe so.
6 Q. During the time that you were in school
7 and high school with Joe, did you and other
8 people -- well, I don't believe you ever used the
9 term, describing cigarettes as "cancer sticks" or
10 "coffin nails", did you hear those terms?

11 A. I had heard that term, yes, sir.

12 Q. But you didn't use them personally, did
13 you?

14 A. I never did, no, sir.

15 Q. And why?

16 A. Well, I just -- it was kind of like
17 tempting fate.

18 Q. Tell us what you mean by tempting fate.

19 A. Well, I'm kind of a superstitious type of
20 person, not real bad, but I don't like the number 1,
21 3. I don't like walking under ladders. I shouldn't
22 be that way, because I consider myself to be a good
23 Christian man, but I guess we all have our little
24 things we have to deal with.

25 But to say to someone, "Give me a cancer

1986 1 stick," it's like the man that built the Titanic
2 said it's unsinkable. He sunk it.

3 Q. The iceberg sunk it.

4 A. Well.

5 Q. Yes, sir. Did you tell us, then, you
6 might want to refer to that, that you felt like it
7 was tempting fate?

8 A. Yes, sir.

9 Q. To call them that.

10 A. Yes, sir.

11 Q. You knew what they were talking about
12 when other people used it around you, didn't you?

13 A. When they used that term?

14 Q. Yes.

15 A. Yes, sir.

16 Q. And what -- what was that?

17 A. That it was possible to get cancer from
18 it.

19 Q. Was that slang widely used in school?

20 A. Widely used, no. You know, I had heard
21 it. To say it was widely used, no, sir, I don't
22 think so.

23 Q. Did -- to your knowledge, Mr. Fischer,
24 did Joe's parents smoke?

25 A. Yes, sir, they did.

1987

1 Q. Do you know if they quit?

2 A. I know that they did, yes, sir.

3 Q. And did they successfully quit, both of
4 them?

5 A. As far as I know, they did.

6 Q. After Joe and Kay got married, did you
7 have an opportunity to be around Kay and visit in
8 their home?

9 A. Yes, sir.

10 Q. Did you know that at some time after
11 their marriage Kay smoked herself?

12 A. That's -- I don't know. That's new to
13 me, either that or my memory doesn't remember it.

14 Q. That's fine. Did Joe ever tell you that
15 he blamed the tobacco companies for his illness?

16 A. Not that I can recall.

17 Q. Did he ever tell you that he wanted to
18 sue the tobacco companies?

19 A. Not that I can recall.

20 MR. LISTON: Okay of him indulge me for
21 just one moment. Court's indulgence just a second.

22 Q. (By Mr. Liston) I have one other
23 question. When we were talking about that film, did
24 you tell us in your deposition that it was your best
25 judgment that Joe saw that film also?

1988

1 A. I think I said I don't know that he --
2 whether he saw the film or not. I didn't see him in
3 that room.

4 Q. Okay.

5 A. I think that's what I said. I'm not
6 sure.

7 Q. All right. But is it your best judgment
8 that he did see it at some time?

9 A. If I had to make a bet on it, I'd say --

10 MR. MERKEL: Objection, Your Honor, we're
11 not here to make bets.

12 JUDGE CARLSON: I'd sustain the
13 objection.

14 MR. LISTON: That's all we have.

15 JUDGE CARLSON: Cross examine.

16 CROSS EXAMINATION BY MR. MERKEL:

17 Q. Hi, Mr. Fischer.

18 A. How are you doing?

19 Q. You were born when, sir?

20 A. In -- on June 26th, 1952.

21 Q. '52. And you graduated from high school
22 in?

23 A. 1970.

24 Q. '70. So we're talking -- anything we've
25 been talking about at a bare minimum happened 30

1989

1 plus years ago.

2 A. Absolutely.

3 Q. Since we've got the deposition involved
4 and you've got it in it, just so the jury,
5 Mr. Fischer, will understand what you're saying and
6 you were saying and what you were telling them back
7 two years ago when you gave this, let's see, when
8 was it, October of '99. Let's look at page 16 of
9 your deposition if you would, sir. Okay. Mr. Ulmer
10 starts out on line 1 there, and he asks a question,
11 "Okay. What brand was Joe smoking then?" What was
12 your answer?

13 A. I said, "I could give a guess, but I

14 don't know that it would be accurate."
15 Q. Then Mr. Ulmer continues, "Well, let me
16 see if this refreshes your memory. In some earlier
17 conversations you indicated you thought it was
18 Marlboro brand he was smoking. Do you know if
19 that's right or not?" What was your answer to that,
20 sir?

21 A. I would say it's probably right only
22 because that's the brand that I smoked."

23 Q. Now, in fairness and honesty,
24 Mr. Fischer, do you have any idea what Joe Nunnally
25 started out smoking 35, 40 years ago?

1990

1 A. No, sir.

2 Q. And did you start out smoking Marlboro?

3 A. Well, because of this situation here, I
4 have been thinking. And no, that was not the first
5 pack of cigarettes I -- that was not the first brand
6 I ever started smoking, no.

7 Q. And Joe was smoking before you met him.
8 When you first met him, he was already smoking?

9 A. He was a smoker.

10 Q. And how long he had been a smoker before
11 that, there's no way, obviously, for you to know?

12 A. I do not know.

13 Q. And let's look at, also, the business
14 about how much he smoked. Let's try to put that in
15 perspective for the jury, too.

16 A. What page, sir?

17 Q. I believe that starts on 14. Well, let's
18 start on line 21, page 14. Question was, "You said
19 that when you met Joe, he was smoking." If you
20 would just read your answer, sir.

21 A. Yes, sir."

22 Q. And how much was he smoking at that
23 point in time, if you know?"

24 A. Probably the same amount as me. He
25 couldn't smoke at home. He couldn't smoke at school

1991

1 that I know of and go into the smoke hole. Excuse
2 me. Oh, my beeper went off at that time, and I said
3 can I answer my beeper?"

4 Q. Okay. There was a recess taken, and then
5 Mr. Ulmer says, "Go right ahead." And what did you
6 say? This is on page 15, line 4.

7 A. Okay. I said, "I really can't say how
8 Joe smoked. I can say he probably smoked just as
9 much as I did. We had the same situation."

10 Q. Now, again, based on what you really know
11 and you could tell the jury under oath, do you have
12 any idea, Mr. Fischer, how many cigarettes a day Joe
13 smoked at the time you first met him?

14 A. No, sir.

15 Q. And let's look at page 18 Mr. Liston
16 asked you to look at, too. On line 20 there,
17 Mr. Ulmer asked you, "Okay. Did Joe ever talk to
18 you about anything about why he smoked?" And what
19 was your answer?

20 A. No."

21 Q. Did he enjoy smoking?"

22 A. Well, I guess he did, you know. Why
23 would he do it? I'm sorry, I don't mean to be" --

24 Q. And he says, "You're not (inaudible) my

25 question, that's all right. But he was a true

1992

1 smoker, I think was the way you characterized it, he
2 enjoyed smoking, enjoyed the taste of smoking,"
3 that's Mr. Ulmer talking, and what was your answer?

4 A. "I would think he had to. We never said,
5 'How is that cigarette?' I would think he had to."

6 Q. So again, of your knowledge, going back
7 30 years, do you know why Joe Nunnally smoked?

8 A. No.

9 Q. Or did he ever express to you why he did
10 that?

11 A. No, sir.

12 Q. Did you ever express to him why you did
13 it?

14 A. No, sir.

15 Q. And let's look at page 24 that you read a
16 little part of also, Mr. Fischer. And this is the
17 thing about the lungs in some kind of a book.

18 Mr. Ulmer asked you on line 11, "Do you have any
19 recollection of, you know, lungs being exhibited in
20 one?" And what did you say, sir?

21 A. "Yes."

22 Q. "And go ahead and tell me about that."

23 A. "You just sparked my memory."

24 Q. Go on and read the whole answer if you
25 would.

1993

1 A. "There was -- seems like to me -- no, it
2 was in a book. They had one of those health books,
3 I think, or some book they had in school that had a
4 normal lung and a -- and a cigarette lung. I always
5 thought the cigarette lung looked better, but
6 evidently, I was wrong. I just looked at the
7 picture, and this one looked better than that one.
8 But I do remember pictures of before and after
9 smoking."

10 Q. So apparently, your recollection of
11 whatever it was trying to portray made you think the
12 cigarette lung looked better than the other one?

13 A. That's the main reason I remembered it, I
14 think.

15 Q. And not only did you never use the term
16 "cancer stick," or "coffin nail," but others in what
17 you call or what Mr. Ulmer called for you the
18 "Brotherhood," they never used that description of
19 cigarettes, either, did they?

20 A. Not that I can recall.

21 Q. And the Brotherhood was who? Who was
22 Mr. Ulmer talking about when he asked you about the
23 Brotherhood?

24 A. It was Joe, Kirk, myself and John.

25 Q. And as far as you can recall, none of the

1994

1 four of you ever used that slang that Mr. Ulmer is
2 talking about?

3 A. No, sir.

4 Q. And as far as the cigarette talking and
5 what you went out of there with, all you remembered
6 about the thing was that it gave you negative
7 feelings in general; is that right, Mr. Fischer?

8 A. Negative feelings about smoking, yes,
9 sir.

10 Q. Didn't tell you anything specific that it
11 could cause or do to you that you recall, you just
12 got an overall negative impression of a talking
13 cigarette?

14 A. I remember the negative feeling when I
15 left out. I don't recall what was said in it.

16 Q. Okay, sir. And you smoke now,
17 Mr. Fischer?

18 A. Yes, sir.

19 Q. Have you smoked ever since, when you
20 started out and you told us about earlier at age 15
21 or whatever it was?

22 A. Pretty much.

23 Q. Have you tried to quit some?

24 A. Yes, sir.

25 Q. How many times?

1995

1 A. At least three times.

2 Q. Haven't been able to get the job
3 accomplished?

4 A. Not yet.

5 Q. How dangerous do you think smoking is to
6 you, Mr. Fischer?

7 A. That's a tough question.

8 Q. I think you answered it on page 43 of the
9 deposition.

10 A. Excuse me.

11 Q. I think on 43, line 17 maybe.

12 A. "To me, personally, I don't think it's
13 that dangerous. I think if you're prone to -- I
14 think when it's your time, it's your time. And some
15 people are more prone to get diseases than others."

16 Q. It would be fair to say, Mr. Fischer,
17 that even today as you sit here, nothing's convinced
18 you that cigarette smoking is going to end up in a
19 bad result for you?

20 A. For me, sir.

21 Q. That's what I mean.

22 A. Yes, sir.

23 Q. If you were told, Mr. Fischer, in no
24 uncertain terms that one out of four people that
25 smoked were going to die of lung cancer. And 40

1996

1 percent of all people that smoker going to die
2 prematurely of some health-related disease caused by
3 cancer, would that make you reevaluate the
4 situation?

5 A. I answered that question in the
6 deposition or a question like it. So my answer may
7 not be the same. Because when I walked out that
8 door that day, I realized that I wasn't lying, but I
9 really didn't think about my answer before I gave
10 it.

11 Your question is with all these
12 statistics that you've just mentioned to me, would
13 it make me quit smoking?

14 Q. Would it give you more incentive to try
15 to quit, assuming you could?

16 A. Sure, and I think I answered the opposite
17 that -- when I gave the deposition. I think I said
18 no, I wouldn't quit. And I don't know if it's legal
19 for me to change my mind, but I changed my mind of
20 my own free will. I think the answer I gave was

21 kind of stupid before. Why I haven't quit yet, I
22 don't know.

23 Q. Do you agree, Mr. Fischer, that the more
24 information you have when you make a choice, the
25 more apt you are to make the right choice?

1997

1 A. I believe that's true.

2 MR. MERKEL: Thank you, Mr. Fischer.

3 REDIRECT EXAMINATION BY MR. LISTON:

4 Q. Does the cigarettes you buy have a
5 warning on the package, Mr. Fischer?

6 A. Yes, sir.

7 Q. Some of those warnings tell you you can
8 get lung cancer?

9 A. I believe they do.

10 Q. And what was the answer you gave in your
11 deposition to that question and if you knew that you
12 might get lung cancer, would you quit? Would you
13 just read the question and your answer?

14 A. Sure. That's on page 44?

15 Q. I believe Mr. Merkel said it was on --
16 yeah, I believe 44.

17 A. I think the answer that you're looking
18 for -- I'm trying to be honest here -- they asked
19 would it make a difference if I knew all that, and I
20 said it probably wouldn't.

21 Q. Okay.

22 A. And that's the --

23 Q. Do you understand the question when that
24 was asked to you back in October?

25 A. When it was asked to me?

1998

1 Q. Yes.

2 A. I would like to say that, yes, sir, I did
3 understand the question. But I knew when I walked
4 out that door that the answer -- and that was the
5 only answer that I gave in this whole deposition
6 that I knew was a stupid answer.

7 Q. And you knew it as soon as you walked out
8 of the deposition room?

9 A. Yes, sir.

10 Q. Now, you had an opportunity to read and
11 sign the testimony that you gave after it was
12 transcribed, did you not?

13 A. I never signed a deposition I know of.

14 Q. That's not my question. My question was:
15 After you testified under oath in the Fairfield Inn
16 up here back last October, that deposition or your
17 testimony was typed up in a form like that, was it
18 not?

19 A. That's correct, yes, sir.

20 Q. And you had an opportunity to read it,
21 make any corrections in it that you thought where
22 your answers might be wrong, did you not?

23 A. I believe that's true.

24 Q. And you did not do that, did you?

25 A. I made a mistake.

1999

1 Q. Well, why didn't you change it?

2 A. I --

3 Q. If you knew it right after you walked out
4 the door?

5 A. When they sent me that deposition to sign

6 and correct, I read it, and I wrote down a few
7 corrections, and never signed it and never mailed it
8 back.

9 Q. Well, you knew that if -- and you were
10 told in that deposition if you wanted to make any
11 corrections in that after you got it that you
12 would -- you would need to do it within 30 days or
13 what you -- what's written there would be your
14 testimony. You were told that, weren't you?

15 A. I believe -- what I believed was that I
16 could rectify that one situation sitting right here.

17 Q. Well, how did you know -- how did you
18 know you were going to be called in here,
19 Mr. Fischer?

20 A. How did I know?

21 Q. Yeah.

22 A. I didn't know for sure, but if I had the
23 opportunity, I was going to rectify it.

24 Q. Now, Mr. Merkel asked you also about the
25 use of the word "cancer sticks" and "coffin nails,"

2000 1 and you told us, did you not, that -- that the fate
2 that you were thinking about that you were afraid
3 you'd be tempting was getting lung cancer?

4 A. I believe that's correct.

5 Q. So you knew when you gave this
6 deposition, did you not, and when you wouldn't use
7 the word "cancer stick" that cigarettes could give
8 you lung cancer?

9 A. I believed at the time that it was a
10 possibility, yes, sir.

11 Q. And that's the reason you wouldn't use
12 those terms?

13 A. Absolutely.

14 Q. And that was common knowledge among your
15 group, wasn't it?

16 A. It was common knowledge to me.

17 Q. Yes, sir. And -- and Joe Nunnally.

18 A. There's an assumption on my part that he
19 knew that, yes, sir.

20 MR. MERKEL: Your Honor, there's no way
21 he could know what someone else knew or didn't know
22 if they never discussed it. Object to the question
23 and answer.

24 JUDGE CARLSON: Based on the question and
25 answer, I sustain the objection.

2001 1 MR. LISTON: All right. Thank you, Your
2 Honor.

3 Q. (By Mr. Liston) You know now,
4 Mr. Fischer, and have known since -- since they were
5 using those words "cancer sticks" around you, that
6 smoking could cause lung cancer; is that correct?

7 A. Do I know now, sir, is that what --

8 Q. Yes.

9 A. -- asking?

10 Q. Yes, sir.

11 A. Yes, sir.

12 Q. And you're still smoking?

13 A. That's correct.

14 MR. LISTON: That's all.

15 JUDGE CARLSON: Mr. Fischer finally
16 released, then?

17 MR. LISTON: Yes, sir.

18 MR. ULMER: Your Honor, we have a fairly
19 short fact witness we'd like to get on and off today
20 if it doesn't unduly burden the Court and the jury.

21 JUDGE CARLSON: How long do you
22 anticipate? Do you need a recess? Let's go ahead
23 and get the witness on, please.

24 MR. MERKEL: Your Honor, I don't think
25 this is going to be a short witness. It's a 90-page

2002 deposition.

1 MR. ULMER: My part will be short, Your
2 Honor.

3 MR. MERKEL: May be, Your Honor, but if
4 we're going to get into a witness, I just feel like
5 everybody should know 90 pages were spent on him on
6 depositions.

7 JUDGE CARLSON: Let me see counsel at the
8 bench.

9 (Off-the-record discussion.)

10 JUDGE CARLSON: Ladies and gentlemen, I'm
11 going to give you a short recess, and get this
12 witness on and off today. Take about a 10 minute
13 break.

14 (A short break was taken.)

15 JUDGE CARLSON: Mr. Ulmer.

16 MR. ULMER: Your Honor, we would call
17 Mr. Kirk Barnes.

18 KIRK BARNES,
19 having been first duly sworn, was examined and
20 testified as follows:

21 DIRECT EXAMINATION BY MR. ULMER.

22 Q. Hello, Mr. Barnes. Tell the jury your
23 name, please, sir?

24 A. My name is Kirk Barnes.

2003

1 Q. And where do you live at this time?

2 A. In Canton, Mississippi.

3 Q. All right. You, I believe, grew up here
4 in the Desoto County area, did you not?

5 A. That is correct.

6 Q. And the reason you're here is because you
7 grew up with Joe Nunnally?

8 A. Yes, sir.

9 Q. And I think, and I'll lead just a little
10 bit with the Court's permission on some of these
11 preliminary questions. You and Joe met in about
12 1963?

13 A. Yes, sir.

14 Q. And what grade were y'all in
15 approximately at that time, Mr. Barnes?

16 A. I was in the 7th.

17 Q. Okay. Now, there's been -- the jury has
18 heard some talk about the Brotherhood. That's a
19 term of affection, is it not?

20 A. Yes, sir, it is.

21 Q. And you and Joe Nunnally and John Holder
22 and Jimmy Fischer were affectionately known as the
23 Brotherhood?

24 A. That is correct.

25 Q. Y'all were real good friends?

2004

1 A. Yes, sir.

2 Q. Grew up together?
3 A. Yes, sir.
4 Q. And in fact, you went through Horn Lake
5 Junior High and high school together?
6 A. Yes, sir.
7 Q. And went off to Northwest Community
8 College, at least some of you may have gotten there
9 sooner than others, but went to community college
10 together?
11 A. Yes, sir.
12 Q. And then did you at any point in time
13 work with Joe at McDonald's?
14 A. Yes, sir, we worked together at
15 McDonald's for a number -- McDonald's hamburgers.
16 Q. So just to kind of summarize this,
17 y'all -- you went to grade school together. Did you
18 or not room together one semester over at Northwest?
19 A. One semester at Northwest, yes.
20 Q. You and Joe?
21 A. Right.
22 Q. Then -- we left out one bees about the
23 Brotherhood, though, and about the friendship that
24 was there between you, and Joe, and Jimmy Fischer
25 and John Holder. At one point y'all started a
2005
1 theater company, I believe?
2 A. Yes, sir, that's correct.
3 Q. And it was called "Sock and Buskin", I
4 believe?
5 A. Yes, sir.
6 Q. And that was in the early -- tell the
7 jury whether or not that was in the early 1980s.
8 A. Late '70s, early '80s, somewhere in that
9 area right there.
10 Q. Okay. Now, do you know what year that
11 Joe Nunnally started smoking?
12 A. No, sir, I do not.
13 Q. Do you know whether or not he started
14 smoking before 1968?
15 A. Well, 1968 is the year that I started.
16 Q. All right.
17 A. And I knew that he was smoking before
18 that. But how long before that, I could not tell
19 you.
20 Q. All right, sir. So you started smoking
21 in 1968, and when you started smoking, Joe Nunnally
22 was smoking?
23 A. Yes, sir.
24 Q. As to exactly when he started, the
25 circumstances under which he started, tell the jury
2006
1 whether or not you know that information or not.
2 A. I have no idea as to that fact.
3 Q. Okay. Now, did you and Joe Nunnally
4 smoke, you know, together because y'all worked
5 together sometimes?
6 A. Yes, sir.
7 Q. And I'm talking now, and I'm really
8 focusing on the young ages, the ages in junior high
9 or high school, whatever. '68 would have been in
10 high school?
11 A. '68 was my junior year in school.
12 Q. Junior year. You graduated, like me,

13 from high school in 1969?
14 A. Yes, sir.
15 Q. Describe for the jury the regularity or
16 the irregular of yours or, more particularly, Joe
17 Nunnally smoking during that time period in the 1968
18 time frame.

19 A. Had well, the only times that I would
20 smoke would be on break at work, after school where
21 we'd go out to parties, things like that.

22 Q. Could you smoke at home?

23 A. I chose not to.

24 Q. Could you smoke at school?

25 A. There was a smoking area at school, yes,
2007
1 sir.

2 Q. But -- well, let me ask a better
3 question. Did you smoke at school?

4 A. No, sir.

5 Q. All right. So would it be fair to
6 characterize the smoking that y'all did -- did at
7 that point in time as fairly sporadic or fairly
8 regular?

9 A. I'd say sporadic.

10 Q. Now, when -- as to the brands or brand
11 that Joe Nunnally smoked, then, or you smoked, tell
12 me how that worked.

13 A. Well --

14 Q. Do you remember?

15 A. I started off smoking Salem -- not Salem,
16 Winston. And we were smoking the same brand at the
17 same time, sometimes he'd buy, sometimes I'd buy.

18 Q. Y'all would community kind of cigarettes?

19 A. Sure.

20 Q. Now, the year that -- that you roomed
21 together at Northwest would have been what year
22 approximately?

23 A. '72.

24 Q. And in that year, how much were you
25 smoking?

2008

1 A. Oh, probably about a pack a day,
2 somewhere in that vicinity.

3 Q. And did you have an opportunity to
4 observe Joe Nunnally and how much he was smoking at
5 that point in time?

6 A. I couldn't tell you exactly.

7 Q. Approximately?

8 A. I wouldn't say any more than I was at
9 that time.

10 Q. Okay. Now, during the "Sock and Buskin"
11 days in the late '70s, early '80s, approximately how
12 much were you smoking and how much was Joe Nunnally
13 smoking at that point in time?

14 A. I'd have to guess probably around a
15 little over a pack a day, probably, maybe a little
16 more, maybe a little less.

17 Q. Did there ever come a point in time that
18 Joe Nunnally switched brands?

19 A. Yes, sir. We changed together to Salem
20 at one time.

21 Q. And what year did you change to Salem?

22 A. Let me try to remember that year. It was
23 the summer before his freshman year at Northwest.

24 So that would have been in my third -- my fifth
25 semester. So that would be early '72.

2009

1 Q. Early '72. Do you know of any efforts at
2 any point in time by Joe Nunnally to quit smoking?

3 A. No, sir.

4 Q. Now, tell me whether or not you ever
5 smoked the Tarrington brand.

6 A. Oh, yes, sir.

7 Q. Tell the jury about that.

8 A. A friend of mine when I first started
9 smoking had smoked Tarringtons, and I remember that,
10 because that's a pack -- I beat him out of half a
11 pack and got caught with them.

12 Q. Your parents caught me?

13 A. My mother caught me, yes.

14 Q. What happened?

15 A. Well, she got a bit upset, to say the
16 least.

17 Q. It's an understatement to say she was a
18 little upset?

19 A. That is correct.

20 Q. And did she counsel with you about
21 smoking?

22 A. She gave me her belief on why I shouldn't
23 smoke, yes.

24 Q. Now, have you -- back when you were in
25 high school during this time frame that we've been

2010

1 talking about, had you heard the phrase "cancer
2 sticks" and "coffin nails"?

3 A. Yes, sir.

4 Q. And had you heard Joe Nunnally use those
5 phrases, "cancer sticks" and "coffin nails"?

6 A. I can't say exactly that I actually heard
7 him.

8 Q. Let me hand you your deposition and let
9 you look at page 50 and see if it refreshes your
10 recollection.

11 A. Okay.

12 Q. And the question was, "And Joe Nunnally
13 would use those expressions as well?" And what was
14 your answer?

15 A. I said, "That is correct."

16 Q. All right are sir. Read the whole page
17 there, just make certain that you're comfortable
18 with that answer, please, sir.

19 A. (Examining.)

20 Q. That is correct, is it not?

21 A. Yes, sir.

22 Q. All right, sir. And of course, those
23 phrases were kind of a part of a common vernacular
24 for our age group of people, weren't they?

25 A. I believe that is correct.

2011

1 Q. And you understood, you know, what that
2 phrase meant, "cancer stick" or a "coffin nail"?

3 A. Yes, sir.

4 Q. Understood it at that point in time?

5 A. Yes, sir.

6 Q. Do you think that information was common
7 knowledge among your peers at that point in time?

8 A. It would seem that away to me, yes, sir.

9 Q. And it was common knowledge among --
10 among the people that you grew up with and lived
11 with back in the high school days that there was
12 significant health risks associated with smoking?

13 A. Yes, sir.

14 Q. Including the risk of lung cancer?

15 A. Well, I -- I guess that's true, yes.

16 Q. All right, sir. Now, did Joe's mother
17 and father smoke?

18 A. Yes, sir.

19 Q. Did they quit at some point in time?

20 A. I couldn't tell you, sir.

21 Q. Now, you -- tell the jury, did you have a
22 very good, long-standing relationship with Joe
23 Nunnally?

24 A. Yes, sir, we were best of friends.

25 Q. He was your best friend?

2012

1 A. Yes, sir.

2 Q. And your group was called the
3 Brotherhood?

4 A. That is correct.

5 Q. Y'all did everything together, you stuck
6 together?

7 A. Yes, sir.

8 Q. All right, sir. And I think you told us
9 in the deposition that you probably knew his life
10 better than anybody, including Kay, up to a certain
11 point in his life.

12 A. Yes, sir, I think so.

13 Q. Did -- did you visit with Joe Nunnally
14 after he was diagnosed with cancer?

15 A. Yes, sir, I did.

16 Q. Visited him in the hospital on -- on
17 occasions, did you not?

18 A. Yes, sir.

19 Q. Visited him at home on occasions?

20 A. Yes, sir.

21 Q. Did he ever say anything to you about
22 filing a lawsuit against R. J. Reynolds or the
23 tobacco company at any point in time?

24 A. No, sir.

25 Q. Did he ever blame his illness on smoking?

2013

1 A. Not that I know of.

2 Q. Now, you, and Joe Nunnally, and John
3 Holder and Jimmy Fischer, y'all had a friendship
4 that went back to the very earliest days of your
5 lives. And you went through school together, you
6 went through college together, and you set up this
7 acting group, Sock and Buskins in about the late
8 '70s?

9 A. Yes, sir. But now, I started in 7th
10 grade, not before that, as far as the group was
11 concerned.

12 Q. Say that one more time. I'm sorry.

13 A. Well, it didn't go back into elementary
14 school.

15 Q. I apologize. You are correct. But
16 nevertheless, you -- you stayed in close contact
17 with Joe because you worked with him at McDonald's
18 until about 1984?

19 A. I believe that date is correct.

20 Q. The and then in 1984, you moved down to
21 Canton, Mississippi, or the Jackson, Mississippi,
22 area?
23 A. Yes, sir.

24 Q. And you know, didn't have as much contact
25 with Joe Nunnally from that point until his death as
2014
1 you had prior to that time?
2 A. That is correct.

3 MR. ULMER: Your Honor, I have nothing
4 further. I tender the witness.

5 JUDGE CARLSON: Cross examination.
6 CROSS EXAMINATION BY MR. MERKEL:

7 Q. Mr. Barnes, you worked with Joe at
8 McDonald's for a period of time; is that right, and
9 then both of you worked for different McDonald's but
10 in similar capacities?
11 A. Yes, sir, that is correct.

12 Q. Tell the jury a little bit, if you would,
13 about Joe Nunnally, Mr. Barnes. Tell them what kind
14 of worker he was. Whether he was ambitious, whether
15 he was hard working, determined to get ahead, just
16 what you observed about him from a standpoint of
17 being a provider for his family?

18 A. He was always a hard worker. That's why
19 I recommended him to come to McDonald's and go to
20 work with us there. He always took care of his
21 family. They always came first.

22 Q. As far as a father, what kind of a father
23 was he as you could observe him?

24 A. Excellent father.

25 Q. And husband?

2015

1 A. And husband as well.

2 Q. You knew Kay and the children well during
3 those years?

4 A. Yes, sir, I did, up until the point that
5 I left and I was away from them.

6 Q. And how would you describe Joe's and
7 Kay's relationship?

8 A. I never saw any problems with their
9 relationship. They enjoyed going out, having a good
10 time, just like we did.

11 Q. Did they seem to enjoy each others'
12 company doing things together and so forth?

13 A. Yes, very much so.

14 Q. When did you find out about Joe's
15 illness, and the fact that he had been diagnosed
16 with cancer?

17 A. I can't give you the exact date. I guess
18 it was -- well, I can't give you the exact date. It
19 was right after he was diagnosed.

20 Q. Pretty close in time to when he learned
21 about it?

22 A. That is correct.

23 Q. How did it affect him? What were his
24 concerns about it?

25 A. He was concerned that he wasn't going to
2016

1 be around with his family.

2 Q. And how his family was going to make it?

3 A. How they were going to make it.

4 Q. Was that a --

5 A. That was a concern for him.
6 Q. Did he try to tough it out and go on
7 working as best he could after that diagnosis?
8 A. He tried to. Worked as long as he could.
9 Q. Were you with him much after the
10 diagnosis between the time he was diagnosed and
11 ultimately died?
12 A. Not as much as I'd like to have. I had
13 already moved to Jackson.
14 Q. When you were with him during that
15 period, Kirk, could you observe whether he was in
16 any pain and distress?
17 A. He -- he was hurting from time to time,
18 and there was definitely a lot of mental distress.
19 Q. You mentioned to Mr. Ulmer that you
20 started out smoking Winstons, and that you and Joe
21 shared for a while.
22 A. That is correct.
23 Q. From the time you first started smoking
24 and were on Winstons, was that what both you and he
25 smoked up until you collectively switched to Salem?

2017
1 A. As far as buying and having, yes.
2 Q. And what was the reason for the switch to
3 Salem.
4 A. We were doing a show at Panola Playhouse
5 which is in Sardis, Mississippi, and it was getting
6 close, into time for production, and director
7 suggested we smoke a Salem, be a little easier on
8 our voice?
9 Q. And that was in 1971, '72, somewhere in
10 that era?
11 A. The summer before he came to Northwest,
12 right.
13 Q. And as far as you know, did he continue
14 to smoke Salems after that?
15 A. Yes, sir.
16 Q. You switched later to something else, I
17 believe.
18 A. That is correct.
19 Q. But as far as your knowledge of what he
20 smoked, continued to be the Salem brand?
21 A. That is correct.
22 MR. MERKEL: Thank you, Mr. Barnes.
23 That's the all I have.
24 MR. ULMER: I have nothing further, Your
25 Honor.

2018
1 JUDGE CARLSON: Mr. Barnes finally
2 released?
3 MR. ULMER: Yes, sir.
4 JUDGE CARLSON: Thank you, sir. You are
5 finally released. All right. Ladies and gentlemen,
6 we'll stop here and start back at 8:30 in the
7 morning. Hope you have a good evening, and we'll
8 see you back here at that time.
9 (Jury exits courtroom.)
10 MR. DAVID: Your Honor, sorry, I just
11 have one housekeeping matter.
12 JUDGE CARLSON: Okay. The jury's gone
13 now, Mr. David.
14 MR. DAVID: Yes, Your Honor. I'm sorry.
15 Mr. Merkel on behalf of the Plaintiffs has withdrawn

16 his objection to Exhibits AN-000220 and AT-000956,
17 so I'll move those in evidence at this time.

18 MR. MERKEL: That's correct, Your Honor.
19 JUDGE CARLSON: Let it be marked and
20 received into evidence.

21 (Exhibit AN-000220 entered into
22 evidence.)

23 (Exhibit AT-000956 entered into
24 evidence.)

25 JUDGE CARLSON: We'll stand in recess

2019

1 until 8:30 in the morning.

2 (Time Noted: 5:20 p.m.)

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